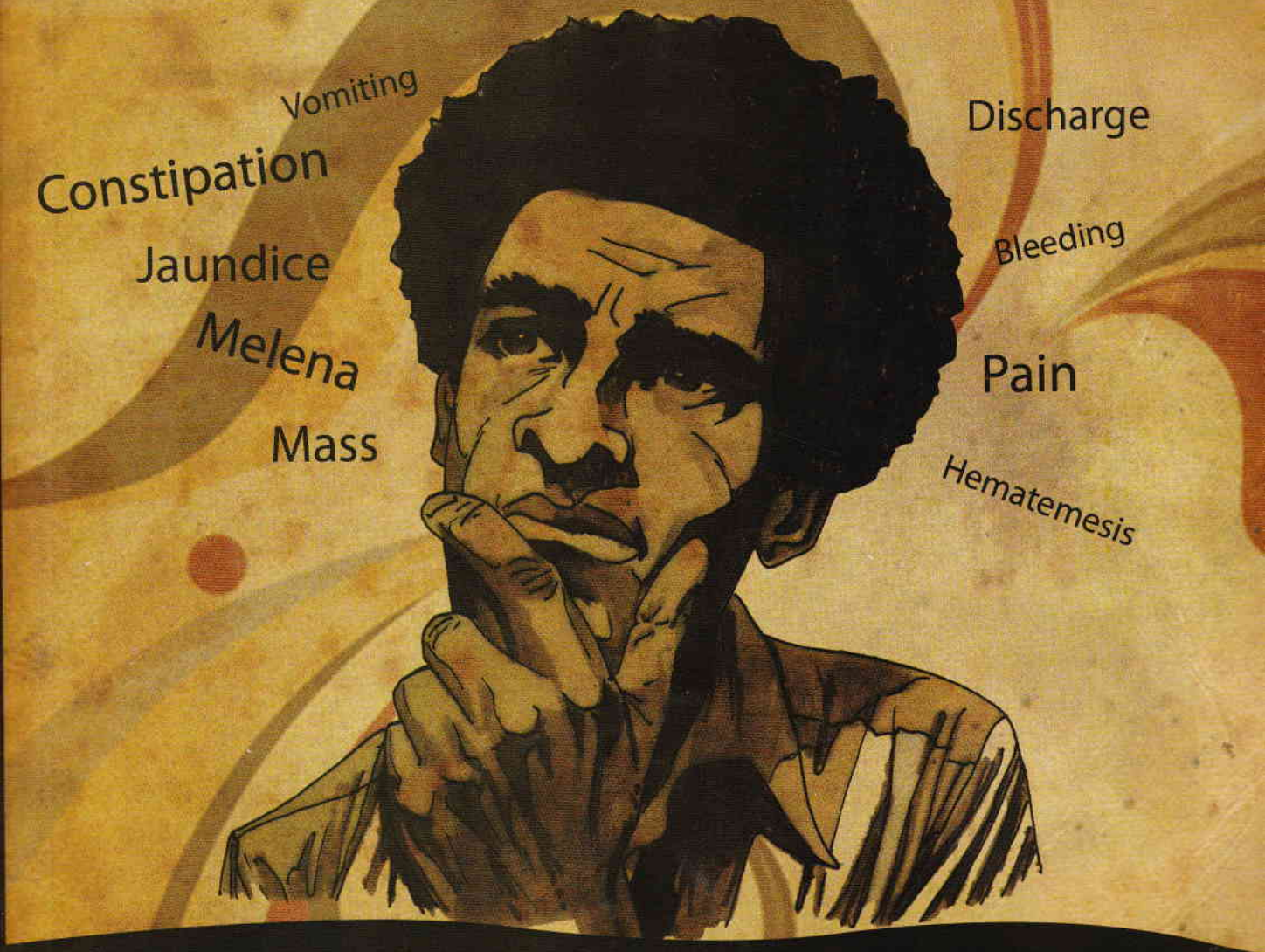
Matary Textbook of

DIFFERENTIAL DIAGNOSIS

Mohammed El-Matary



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Dedication

Allah the all merciful, I beg Thee
To accept this effort
For the soul of my mother
She was your gift for me

Acknowledgement

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Index

	Head and neck	▪ D.D of a swelling in the neck. ▪ D.D of a swelling in the parotid region. ▪ D.D of lip ulcers.	2
	Breast	▪ D.D of a breast mass (lump). ▪ D.D of a breast cyst. ▪ Management of any breast cyst. ▪ D.D of a breast pain. ▪ D.D of nipple discharge.	16
	Chest and back	▪ D.D of chest wall swellings. ▪ D.D of swellings of the back.	28
	Upper and lower limb	➢ **Masses:** ▪ D.D of a swelling in the axilla. ▪ D.D of a mass in the popliteal fossa. ▪ D.D of a swelling in the femoral triangle. ▪ D.D of an acutely inflamed swelling in the femoral triangle. ▪ D.D of a swollen limb. ➢ **Pain:** ▪ D.D of a painful limb.	30
	Inguinoscrotal	▪ D.D of a swelling in the inguinoscrotal swelling. ▪ D.D of a scrotal swelling.	38
GIT	GIT symptoms	▪ D.D of Dysphagia. ▪ D.D of Dyspepsia. ▪ D.D of pyloric obstruction. ▪ Vomiting. ▪ Abdominal distension. ▪ D.D of Acute abdomen. ▪ D.D of Anal pain.	44
	Masses of the GIT	▪ D.D of a swelling in Rt. Hypochondrium. ▪ D.D of a swelling in Lt. Hypochondrium. ▪ D.D of a swelling in Rt. iliac fossa. ▪ D.D of a swelling in Lt. iliac fossa. ▪ D.D of a swelling in the epigastrium. ▪ D.D of a swelling in the umbilical region. ▪ D.D of a swelling from the Anus. ▪ D.D of a swelling in suprapubic region.	55
	Bleeding in GIT	▪ Upper GIT bleeding (hematemsis-melena). ▪ Bleeding per rectum.	68
	Trauma	▪ Polytraumatized patient. ▪ Neck injuries. ▪ Stab wound in the femoral triangle.	76
	Urosurgery	▪ Hematuria. ▪ Urinary diversion.	86
	D.D. in Tables	Divided by branches	92

Head & Neck

D.D of a Swelling in the Neck

Causes

- Midline swellings:

A- Solid swellings:

- Large subnental LN.
- Goiter of the thyroid isthmus & pyramidal lobe.
- Peritrachreal & perilarngeal LN.
- Ectopic thyroid

B- Cystic swellings:

- Thyroglossal cyst.
- Dermoid cyst (submental or suprasternal).
- Subhyoid bursitis. Rare tender, oval swelling, which lies transversely below the hyoid bone. It moves up and down with deglutition and with protrusion of the tongue.
- Cysts in the thyroid gland.
- Laryngocele. Occurs in musicians playing with air-blown instruments. The swelling is resonant, compressible and increases in size with coughing and blowing.
- Cold abscess, which is rare in the mid-line.

Diagnosis

I- Large submental LN (see below)

II- Thyroglossal cyst

- **C/P:**
  - ☑ **Symptoms:**
    - Child 6-8 yrs presented by painless swelling infont of the neck,pain only if infected.
  - ☑ **Signs:**
    1. Cystic mass in the mid-line of the neck (by paget's test)
    2. Moves with deglutition & protrusion of the tongue & moves from side to side not from above down wards
- **Investigations:** US → cyst

III- Dermoid cyst

- **C/P:**
  - ☑ **Symptoms:**
    - Child with slowly growing painless swelling in mid-line either sub-lingual or suprasternal
  - ☑ **Signs:**
    - Lax cystic swelling not attached to skin.
- **Investigations**: no need (it is a clinical diagnosis)

IV- Ectopic thyroid

- **C/P:**
  - ☑ **Symptoms:**
    - Painless swelling in middle of neck.
  - ☑ **Signs:**
    - Solid mass (by paget test)
    - Thyroid moves:with deglutition only
    - If lingual : dyspnea,dysphagia,dysasthsia
    - If fetrosternal: pressure manifestation:
- **Investigations**: - U/S:solid
  - TC scan: to confirm whether its only thyroid tissue or not.

Lateral swellings:

A- Swelling in the submandibular triangle:

- Enlarged submandibular LNs.
- Enlarged submandibular salivary gland.

B- Swellings in the carotid triangle:

- **Solid swellings**
  - Enlarged upper deep cervical LNs.
  - The upper part of an enlarged lateral obe of the thyroid gland. It moves up with deglutition
  - Carotid body tumor. Rare, slowly growing, moves from side to side but not vertically showing transmitted pulsations
- ***Cystic swellings:***
  - Cold abscess. Usually in children and young adults. It is soft and fluctuant with dusky skin. It is slightly warm and slightly tender. There may be manifestations of T.B in other parts of the body.
  - Branchial cyst. Usually appears at the age of 20 years, deep to upper 1/3 of sternomastoid protruding beneath its anterior border, tense and opaque.
  - Cystic swelling in the upper part of an enlarged lateral lobe of the thyroid gland.

✸ Diagnosis

The most common causes are:

- ☑ **Submental & submandibular LN swelling**
- ☑ **Submandibular salivary gland swellings.**

Submental & submandibular LN swelling:

A. Acute lymphadenitis:

- **C/O:** painful swelling of short duration.
- **O/E:**
  - Enlarged tender matted LNs. → usually apparent source of infection in the catchment's area, e.g. the tongue, lips or teeth... Latent abscess may form & the swelling becomes cystic.

B. TB lymphadenitis: more in children:

- C/O: slowly growing swelling.
- O/E:
  - Firm matted LNs.
  - Later, a cold abscess may form → finally ruptures leaving a TB sinus.

C. Lymphoma:

- **C/P:**
  - There is usually other LN swellings in the body.
  - The spleen may be palpable.

► **Investigations**
- Biopsy is essential to establish the diagnosis.

☑ **D. Metastatic carcinoma:**

► **C/P:**
- LNs are hard & painless.
- Mobile at first & later fixed.
- The 1ry is usually apparent e.g. in the tongue.

► **Investigations**

☑ **Directed to the 1ry lesion.**

Submandibular salivary gland swellings

- **Submandibular salivary gland swelling is differentiated from submandibular LN swelling on bimanual palpation.**
- **Salivary gland swelling is solitary & can't be rolled over the edge of the mandible.**
  - felt bulging into the floor of the mouth
  - LN swelling → not felt.

☑ **A. Submandibular sialoadenitis:**

- **C/O:**
  - Painful swelling. - Occurs during meals & gradually subsides.
- **O/E:**
  - Firm & tender swelling.
  - The orifice of the duct → reddish & pus discharged from it on pressing on the gland.
  - A stone may be palpable in the floor of the mouth.
- **X-ray** → demonstrate size & position of the stone.

☑ **B. Submandibular salivary tumor:**

- **Pleomorphic adenoma :**
  - *Symptoms* → painless swelling of the gland which does not ↑ with meals.
  - *Signs*: well defined, lobulated, freely mobile, firm cystic in consistency
- **Carcinoma**
  - *Symptoms:* rapidly growing swelling manifestation of lingual or hypoglossal N. paralysis
  - *Signs* → hard swelling (at 1st mobile → later fixed, infiltration of skin, Vs, Ns).

Swellings in the posterior triangle

➔ **Solid swellings:**

- Enlarged LNs.
- Cervical rib.
- Neurofibroma arising from the brachial plexus. Rare, tender but not painful, fusiform in shape, firm, mobile across but not along the nerve trunk.

➔ **Cystic swelling:**

- Cystic hygroma. An infant with a large swelling superficial to sternomastoid. It is large, irregular, lax and translucent
- Pharyngeal pouch. Usually an old man with dysphagia and regurgitation of undigested food on compression.
- Cold abscess. Usually in children and young adults. It is soft and fluctuant with dusky skin. It is slightly warm and slightly tender. There may be manifestations of T.B in other parts of the body.
- Pneumatocele. Cystic swelling in the supraclavicular region which is resonant and compressible.

Other swellings that may arise anywhere

► In addition, swellings of the skin and subcutaneous tissue are common in the neck and should be put in mind. They are added to any of the previous lists.

1. Lipomas.
2. Sebaceous cysts.
3. Haemangiomas.

Solitary Thyroid Nodule

DEFINITION

- **It's a clinical diagnosis which refers single thyroid nodule which may be :**
  - Discrete: one palpable in otherwise normal thyroid gland.
  - Dominant: Large Palpable Nodule + Multiple Smaller Nodules.

CAUSES

1. The nodule may be part of multinodular goiter, other nodules are not clinically palpable (commonest).
2. Colloid nodule.
3. Toxic nodule.
4. Adenoma.
5. Carcinoma.
6. Localized thyroiditis (hashimoto thyroiditis)
7. Thyroid cyst (as hydatid cyst).

DIAGNOSIS (Need Good History, General Local& Examination)

Simple multinodular goitre

Clinical picture:

Type of patient

- **Female 30-40 years** with nodular swelling on the front of the neck.

Symptoms

1. **Cosmetic deformity (main complaint)** (painless slowly growing neck swelling).
2. **Pressure symptoms:**

Retrosternal extension or malignancy

a) Pressure on trachea → positional dyspnea and cough especially at night
b) Pressure on esophagus → dysphagia.
c) Pressure on carotid artery → dizziness.
d) Pressure on internal jugular vein → blackout increases on leaning forward.
e) Pressure on RLN → change of voice.

3. **Pain:**
   - It is uncommon but may be felt when **hemorrhage** occurs in a nodule or late **malignancy**.

Signs

General: no thyrotoxic manifestations.

Local:

⇨ **Clinical Picture of the disease:**

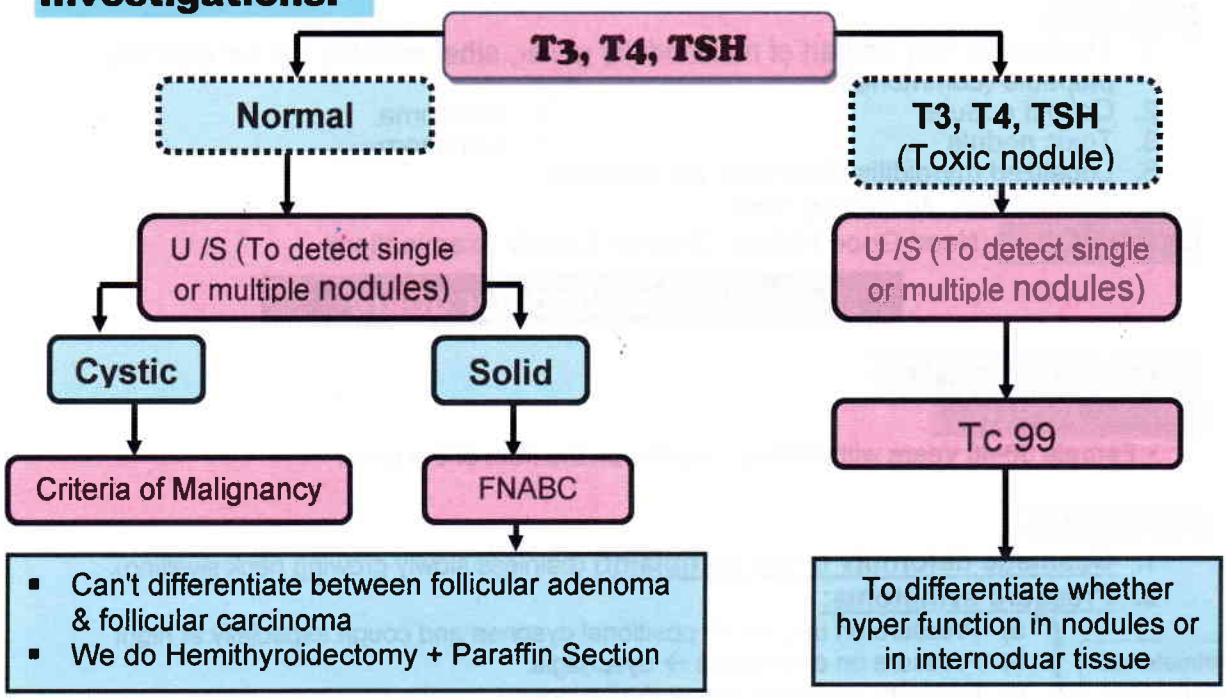
1. **Inspection:**
   - Asymmetrical thyroid swelling in lower part of the front of the neck moving up & down with deglutition
2. **Palpation:**
   - Thyroid swelling:
     1- Nodular (solitary, or multinodular).

2- Firm.
- The trachea may be displaced from the middle line or tracheomalacia detected by **Kocher's test**.
- Carotid artery: pulsation is felt but may be shifted in huge goitre.

Complications:

1. Pressure on trachea.
2. Secondary thyrotoxic changes.
3. Hemorrhage.
4. Cyst formation.
5. Infection.
6. Retrosternal extension.
7. Calcification (in long-standing cases).
8. Malignant changes .

Investigations:



- **Pre-operative investigations:** CBC, FBS, KFT, LFT, ECG, CXR.
- **Staging:** CT, U/S, Bone scan, CXR.
- **Thyroid Antibodies:** in Haschimoto thyroiditis.
- The value of thyroid scan in cases of solitary thyroid nodule is:
    1. May reveal the presence of multinodular goiter.
    2. If the nodule is hot, it is toxic and the possibility of malignancy is nearly excluded.
    3. If the nodule is warm, it is a functioning adenoma and the possibility of malignancy is nearly 3.5%.
    4. If the nodule is cold, the possibility of malignancy is 10-16%.

Treatment:

-Partial thyroidectomy:
- Removal of the nodular parts leaving an equivalent of 8 gm of relatively normal thyroid tissue (size of normal lobe) on each side if feasible to reduce the risk of hyperparathyroidism that accompanies total thyroidectomy.

-Subtotal thyroidectomy: Removal of thyroid tissue leaving about 4-5 gm of thyroid tissue on each side, so, total remnant on both sides equal one normal lobe.

-Total thyroidectomy:
- + Replacement therapy to prevent recurrence and to avoid accidental malignancy.

-Total lobectomy if one lobe is more significantly involved than the other with either subtotal resection or no intervention on the less affected side **(Dunhill procedure).**

Colloid nodule:

- **Etiology:** is a late stage of diffuse hyperplasia when TSH stimulation has fallen of and when many follicles are inactive and full of colloid as patient may receive large doses of iodine → it will inhibit TSH and protease → hyper-involution of the gland.
- **C\P:** The gland is diffusely enlarged (Soft, Smooth, Symmetrical).
- **Fate:** It may return to normal or cause pressure manifestations.
- **Treatment:** Conservative unless causing pressure manifestations → Subtotal Thyroidectomy.

Autonomous nodule:

Clinical picture:

The disease has gradual onset and slowly progressive course.

Type of Patient Commonly in females at any age

Most Frequent Manifestations

- As Graves' but CVS or nervous manifestations according to age.

Clinical Picture Can be Classified into:

A- Toxic Manifestations

B- Local Manifestations (Thyroid Gland)

- Only one palpable nodule is felt in the gland.

Investigations:

- **Thyroid Functions:** as Graves'.
- **U/S of the neck:** solitary nodule
- **Thyroid scan:** hot nodule with suppression of the uptake of surrounding thyroid tissue.

Treatment:

1. **Surgical Treatment:**
   - Ipsilateral total lobectomy.
   - Indicated in patients < 45 years.
2. **Radioactive iodine.**
   - Very effective (as the autonomous nodule is the only part that will take the iodine). But used in patient > 45 years for fear of malignancy
3. **Medical Treatment:** as secondary thyrotoxicosis.

Hashimoto's thyroiditis:

Clinical picture:

Type of patient

- Middle age female, with goitrous myxedema & other autoimmune disease.

Symptoms

- Fluctuating course.
- Manifestations of thyrotoxicosis in 5% of cases.
- Manifestations of myxedema.
- Other autoimmune disease.

Signs

- **General:**
  - Manifestations of myxedema : usually associated with splenomegaly.
  - Autoimmune manifestations e.g. erythema nodosum .
- **Local:**
  - Asymmetrical large nodular firm asymmetrical swelling in the front of the neck Moves up with deglutition.

Investigations:

- **Laboratory:**
  - Thyroid function ↓
  - Antibody detection : Antithyroglobulin & Antimicrosomal antibody
  - High ESR , leucocytosis
- **Radiological:**
  - U/S: multiple nodules
  - Thyroid scan : low uptake
- **FNABC: Askanazy cells + lymphocytic infiltrations**
  (The best investigation although abundant lymphocytes may make the cytological differentiation between autoimmune thyroiditis and lymphoma very difficult)

Treatment:

⇨ Medical Treatment:

1. Cortisone.
2. L- Thyroxin. (Main treatment)
3. Inderal to control toxic symptoms during Hashi-toxicosis.

⇨ Indications for surgery

1. Large goitre with pressure manifestations
2. Suspicion of malignancy. i.e. :
   - Rapid increase in size.
   - Pain.
   - Ulceration.
   - LN enlargement.

D.D of a Swelling in Parotid Region

✸ Causes

➢ Parietal swelling:

☑ **Skin:**

- Sebaceous cyst.
- Hemangioma.
- Abscess.
- Hematoma.

☑ **S.C tissue:**

- Lipoma
- Neurofibroma.
- Neurofibrosarcoma.

Musculoskeletal:

- ☑ **Muscular (from masseter muscle):** fibrosarcoma, masseter muscle hypertrophy →Usually bilateral and common in females that have involuntary grinding of their teeth.
- ☑ **Bony (from the ramus of mandible),** Burkit's lymphoma

Pre-auricular LN swellings:

- ☑ **Lymphadenitis:** acute & chronic (non-specific & specific e.g. TB lymphadenitis).
- ☑ **Malignancy:** lymphoma & metastatic carcinoma.

Parotid gland:

- ☑ **Inflammation:**
  - Acute (viral, bacterial).
  - Chronic (TB, sarcoidosis).
- ☑ **Autoimmune:**
  - Sjogren's syndrome.
  - Benign lymphoepithelial lesion.
- ☑ **Tumors:**
  - **Benign:**
    - Pleomorphic adenoma
    - Adenolymphoma
    - Oncocytoma.
    - Monomorphic adenoma.
  - **Malignant:**
    - Mucoepidermoid carcinoma
    - Adenoid cystic carcinomao
    - Carcinoma ex pleomorphic adenoma.

Acinic cell carcinoma

Diagnosis

The most common causes are:

1. Parotid gland swelling.
2. Pre-auricular LN swellings.

Parotid gland swelling

☑ **A. Parotid sialoadenitis:**

- **C/O:**
  - Painful swelling.
  - Occurs during meals & gradually subsides.
- **O/E:**
  - Firm & tender swelling.
  - The orifice of the duct → reddish & pus discharged from it on pressing on the gland.
- **Sialogram: best in parotid stones as they are radiolucent (filling defect)**

☑ **B. Submandibular salivary tumor:**

- Pleomorphic adenoma
  - ☞ **SYMPTOMS**→ painless swelling of the gland which does not ↑ with meals.
  - ☞ **SIGNS: mobile non-tender mass firm/cystic,lobulated,raising lobule of ear,LN not enlarged.**
- Carcinoma → hard swelling (at 1st mobile → later fixed).

Pre-auricular LN swellings:

☑ **A. Acute lymphadenitis:**
- **C/O:** painful swelling of short duration.
- **O/E:**
  - Enlarged tender matted LNs.
  - Usually apparent source of infection in the catchment area... Latent abscess may form & the swelling becomes cystic.

☑ **B. Lymphoma:**
- **C/P:**
  - There is usually other LN swellings in the body.
  - The spleen may be palpable.
- **Investigations:**
  - Biopsy is essential to establish the diagnosis.

☑ **C. Metastatic carcinoma:**
- **C/P:**
  - LNs are hard & painless.
  - Mobile at first & later fixed.
  - The 1ry is usually apparent e.g. in the tongue.
- **Investigations:** directed to the 1ry lesion.

DD of lip ulcers

Definition:

- It's a break in the mucous membrane or the epithelium of the lips or surrounding the mouth

✸ Causes

i- Trauma:
- Minor physical injuries e.g. sharp tooth, ill-fitting dentures
- Chemical injuries e.g. Aspirin, alcohol with prolonged contact

ii- Infection:
- Viral: the commonest is herpes simplex virus
- Bacterial: e.g. TB., syphilis or opportunistic by the nasal bact. flora
- Fungal: e.g. cryptococcus
- Protozoal: E.histolytica

iii- Immunology:
- Apthus ulcer
- immunodeficiency as in HIV
- autoimmune, allergy

iv-Dietary: malnutrition e.g. Vit. C deficiency, Vit. B12 deficiency

v- Cancer: basal cell carcinoma, sq. cell carcinoma, melanoma

vi-Medical conditions ass. with mouth ulcers: e.g.
- Behcet's ds.
- Systemic lupus
- Celiac ds.
- Ulcertive colitis
- Chron's ds
- Oral thrush
- Gingivostomatitis
- Infectious mononucleosis
- Leukoplakia
- Oral lichen planus

✸ Discuss:

➔ **The commonest lip ulcer is Apthous ulcer**
➔ **The 2nd most common is Herpes simplex virus (known as cold ulcer)**
➔ **The most serious is malignant ulcer (sq. cell carcinoma)**

1- Aphthus ulcer:

- It's a very common ulcer.
- Occurs in 10% of the population
- More common in females esp. with +ve family history
- **Etiology:** unknown
- **C/P:** - Burning pain(very painful) - Edematous lips
  - Superficial yellow ulcers
  - Few mm in diameter & surrounded by red hyperemic halo
  - Heals within 1 or 2 weeks, but may be multiple recurrent & chronic
  - Needs no specific treatment except for bland mouth wash & ttt of dyspepsia

2- Herpetic ulcer: (known as cold ulcers):

- **Etiology:** caused by herpes simplex type I or II
- **C/P:** - Unilateral eruption of small vesicles on the skin & mm
  - They don't cross the midline
  - After they rupture they leave small superficial areas of ulcerations later on forming characteristic scab
  - They are extremely painful.
- **INV:** it's a clinical diagnosis
- **TTT:** only symptomatic e.g. analgesics, antihistaminics , we may give antiviral

3- Malignant ulcer:

- **Incidence:** male, old age,
- **History of the PDF:** eg. smoking, alcohol, prolonged exposure to sun
- **C/P:**
  - ✓ ***Symptoms:***
    - Painful ulcer, edematous lips, manifestations of metastasis.
  - ✓ ***Signs:***
    - **Site:** lower lip is more common esp at the mucocut. junction
    - **No:** usually starts as a single cauliflower mass or flat nodule then ulcerates
    - **Shape:** oval, rounded or irregular
    - **Edge:** raised, everted edge
    - **Floor:** necrotic tissue
    - **Margin:** may be infiltrated with necrotic tissue
    - **Base:** indurated, later on fixed
    - **LNs:** enlarged, hard early mobile & later on fixed
      - If in the lower lip ➔ in the middle part → submental LN
        ➔ in the lateral part → submandibular LN
      - If in the upper lip: submandibular LN on both sides
- **INV:** biopsy

Head & Neck Handouts

Solitary Thyroid Nodule

DEFINITION

- **It's a clinical diagnosis which refers single thyroid nodule which may be :**
  - Discrete: one palpable in otherwise normal thyroid gland.
  - Dominant: Large Palpable Nodule + Multiple Smaller Nodules.

CAUSES

1. The nodule may be part of multinodular goiter, other nodules are not clinically palpable (commonest).
2. Colloid nodule.
3. Toxic nodule.
4. Adenoma.
5. Carcinoma.
8. Localized thyroiditis (hashimoto thyroiditis)
9. Thyroid cyst (as hydatid cyst).

DIAGNOSIS (Need Good History, General Local& Examination)

HISTORY

⇨ **Personal history:**
- Age, sex: Cancer is common in old male while secondary thyrotoxicosis Common around 45 years.
- Residence: in oasis endemic goiter.

⇨ **HPI:**
- Swelling in lower part of the neck:
  1. Onset, Course & duration.
     - Slowly progressive within years in S.N.G. or adenoma.
     - Rapid within months in carcinoma.
  2. Other swelling in metastasis.
  3. Effect on the general condition
     - Fever in sub acute thyroiditis.
     - Cachexia in malignancy.
- Toxic symptoms (In Toxic Nodule) e.g. Weight Loss In Spite Of Good Appetite intolerance to Hot Weather & Palpitation.
- Pressure manifestations (especially in malignancy) e.g. dyspnea, dysphagia & hoarseness of voice.
- Pain late malignancy or inflammation or hemorrhage in a nodule of SNG.
- Other Systems
  - Flushing ,diarrhea, bronchospasm in medullary carcinoma
  - Metastatic manifestation e.g. skull module & bone ache

⇨ **PH:**
- Neck Irradiation in papillary carcinoma.

⇨ **FH:** In medullary carcinoma (MEN-II-).

EXAMINATION

⇨ **General:**

a. Signs of toxicity :e.g.
   1. Tachycardia (sleeping pulse > 90).
   2. Eye manifestations e.g. exophthalmos.

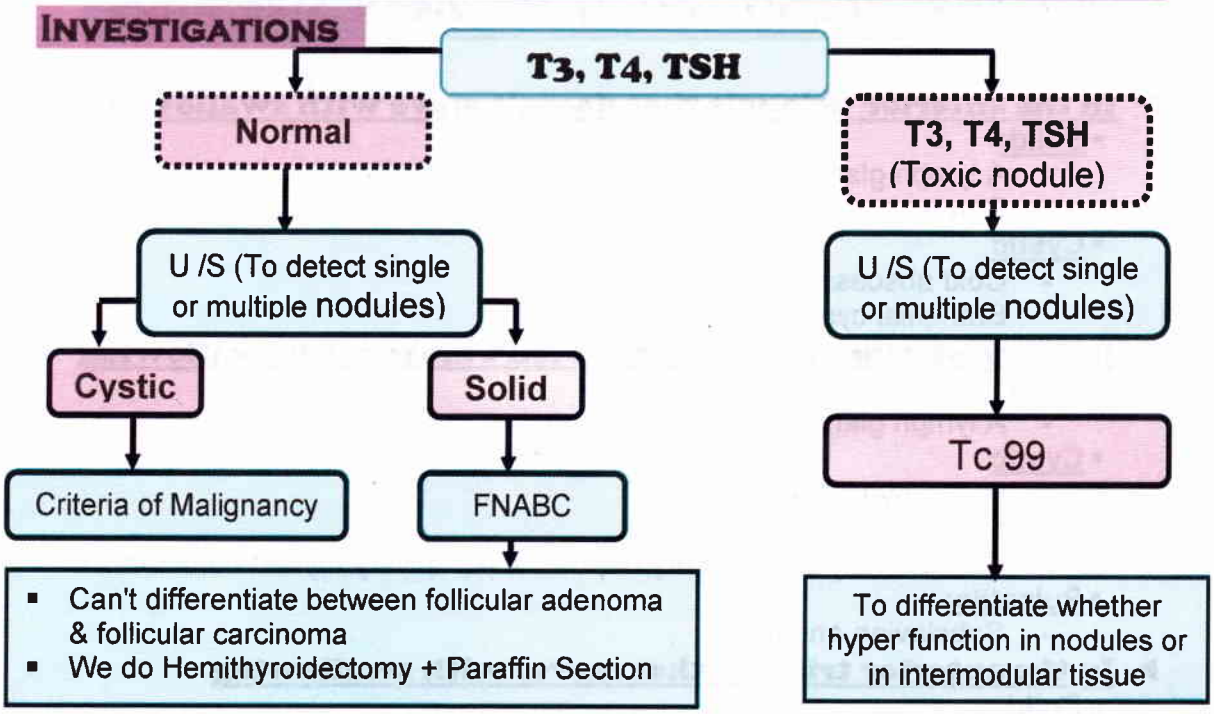
b. Signs of metastasis Skull nodule

⇨ **Local:**

1. Thyroid Swelling In muscular of the neck moving up & down with deglutition.
   a- Hard with limited mobility in malignancy
   b- Fleshy & mobile in adenoma & simple nodule.
2. LNS enlargement in malignancy &thyroiditis.
3. Effect on surroundings.
   - Absent carotid pulse (berry 's sign)
   - Stridor on moving trachea(Kocher's)

N.B: findings that raise the suspicion of malignancy in a solitary nodule:

1. History of previous irradiation.
2. Young and elderly patients.
3. Recent onset and rapid growth.
4. Pain.
5. If the nodule is hard, irregular, with limited mobility.
6. Presence of local invasion or lymphatic or blood borne metastases.



- **Pre-operative investigations:** CBC, FBS, KFT, LFT, ECG, CXR.
- **Staging:** CT, U/S, Bone scan, CXR.
- **Thyroid Antibodies:** in Haschimoto thyroiditis.
- The value of thyroid scan in cases of solitary thyroid nodule is:
  1. May reveal the presence of multinodular goiter.
  2. If the nodule is hot, it is toxic and the possibility of malignancy is nearly excluded.
  3. If the nodule is warm, it is a functioning adenoma and the possibility of malignancy is nearly 3.5%.
  4. If the nodule is cold, the possibility of malignancy is 10-16%.

TREATMENT

➔ **According to cause of nodule**

A-Toxic nodule:

- if <45 years → Hemithyroidectomy
- If <45 years → Radio-active iodine.

B-Malignant:

⇨ **Papillary:**

- Total or near total thyroidectomy.
- Cherry picking (of affected L.N. only)
- L-thyroxin (supplementary & to suppress TSH)

⇨ **Follicular:**

- Total or near total thyroidectomy.
- Radioactive iodine for metastasis

L-thyroxin (supplementary).

Another classification for neck swellings

➔ A single lump

▶ **In the anterior triangle that doesn't move with swallowing**

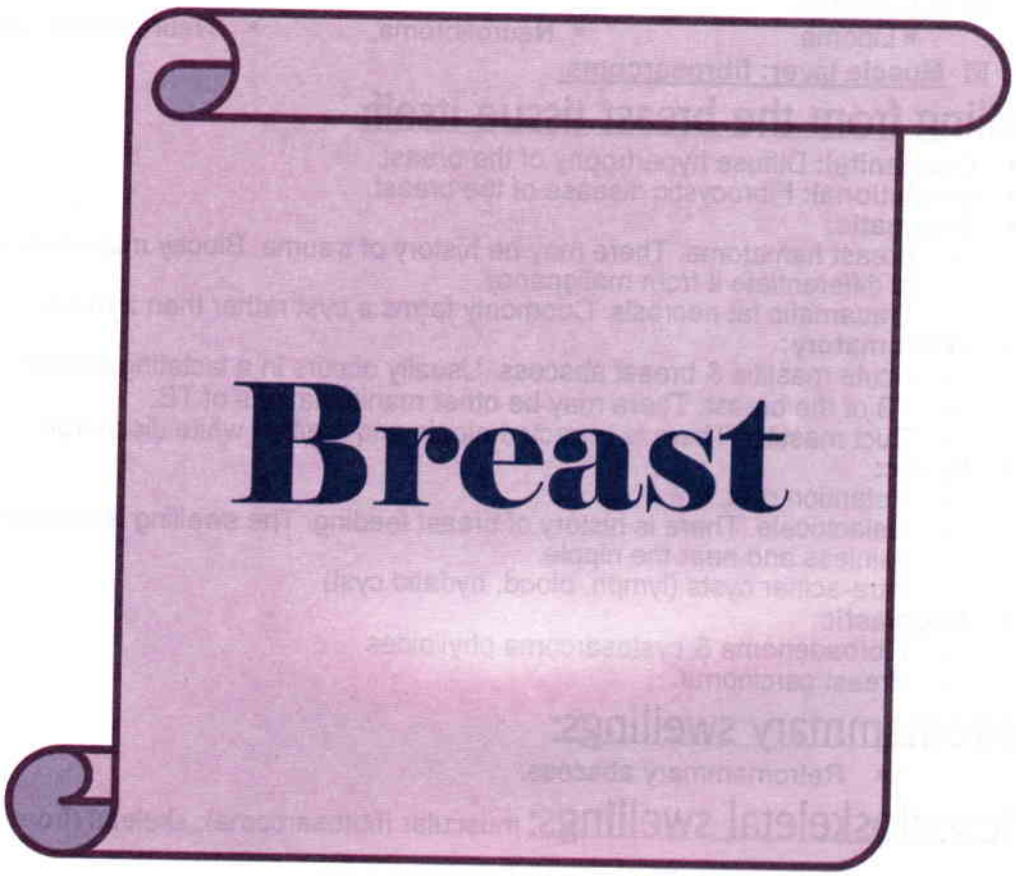
- **Solid:**
  - A lymph gland
  - Carotid body tumor
- **Cystic**
  - Cold abscess
  - Branchial cyst

▶ **In the posterior triangle that doesn't move with swallowing**

- **Solid**
  - A lymph gland
- **Cystic**
  - Cystic hygroma
  - Pharyngeal pouch
  - Occasionally a secondary deposit of a papillary thyroid carcinoma
- **Pulsatile:**
  - Subclavian aneurysm

▶ **In the anterior triangle that moves with swallowing**

- **Solid:**
  - thyroid gland
  - Pretracheal LN (Delphian LN)
- **Cystic**
  - Thyroglossal cyst


Breast

D.D of Breast Mass (lump)

Causes

Parietal swelling:

☑ **Skin:**
- Sebaceous cyst.
- Haemangioma.
- Abscess.
- Haematoma.

☑ **S.C tissue:**
- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma.

☑ **Muscle layer: fibrosarcoma.**

Swelling from the breast tissue itself:

- **Congenital:** Diffuse hypertrophy of the breast.
- **Involutional:** Fibrocystic disease of the breast.
- **Traumatic:**
  - Breast hematoma. There may be history of trauma. Biopsy may be needed to differentiate it from malignancy.
  - Trauamatic fat necrosis. Coomonly forms a cyst rather than a mass.
- **Inflammatory:**
  - Acute mastitis & breast abscess. Usually occurs in a lactating females
  - TB of the breast. There may be other manifestations of TB.
  - Duct mastitis. There is retracted nipple and creamy white discharge
- **Cystic:**
  - Retention cyst.
  - Galactocele. There is history of breast feeding. The swelling is solitary, painless and near the nipple.
  - Intra-acinar cysts (lymph, blood, hydatid cyst)
- **Neoplastic**:
  - Fibroadenoma & cystosarcoma phylloides
  - Breast carcinoma.

Retromammary swellings:

- Retromammary abscess.

Musculoskeletal swellings: muscular (fibrosarcoma), skeletal (from ribs).

Diagnosis

- Fibrocystic disease is the most common.
- Breast carcinoma is the most dangerous.

Fibrocystic disease of the breast:

Clinical picture:

More in 30-50 yrs.

☑ **Asymptomatic.**

☑ **Symptomatic** (S/S ↑ premenstrual & may disappear after menstruation.
- Lump.
- Mastalgia (cyclic).
- Painful nodularity (commonest complaint): multiple, small, painful unilateral/bilateral nodules.
- Nipple discharge: usually clear or yellow, sometimes brown or green.

Investigations:

Usually clinical diagnosis, investigations may be needed to exclude carcinoma:

- ☑ **Radiologe:** U/S or mammography → cysts.
- ☑ **Instrumental:**
  - Aspiration → cytology
  - Biopsy → histology.

Breast cancer:

Clinical picture:

More in old ♀

History: predisposing factors, e.g. F.H. early menarche, late menopause, low parity, obesity…

- ☑ **C/O:**
  - Accidentally discovered lump, painless in most of cases (the commonest presentation).
  - Mild breast pricking pain (less frequent presentation).
  - Late cancer: symptoms of metastasis: axillary lump, dyspnea & hemoptysis, hepatomegaly & jaundice
  - Early cancer: asymptomatic, discovered by screening programs.
- ☑ **O/E:**
  - **Local:**
    - Breast: asymmetrically enlarged, skin dimpling & puckering, Pau d' orange, skin nodule & ulceration.
    - Mass: hard irregular, ill-defined, immobile with the breast, fixed to the skin.
    - Nipple: retracted, maldirected.
    - Axillary & supraclavicular LNs: for lymphadenopathy.
  - **General:**
    - Cachexia.
    - Metastasis: hepatomegaly, ascites, chest examination, PV (for Krukenberg tumor).

Investigations:

- ☑ **Radiology:** U/S (particularly in young ♀), mammography →dense opacity with speculated ill-defined outline & microcalcification.
- ☑ **Instrumental:**
  - Biopsy (for histology):
    - Excision biopsy (most accurate).
    - Frozen section (practical).
    - True-cut- needle biopsy.
  - FNAC (for cytology)

DIFFERENTIAL DIAGNOSIS

DD of breast cyst

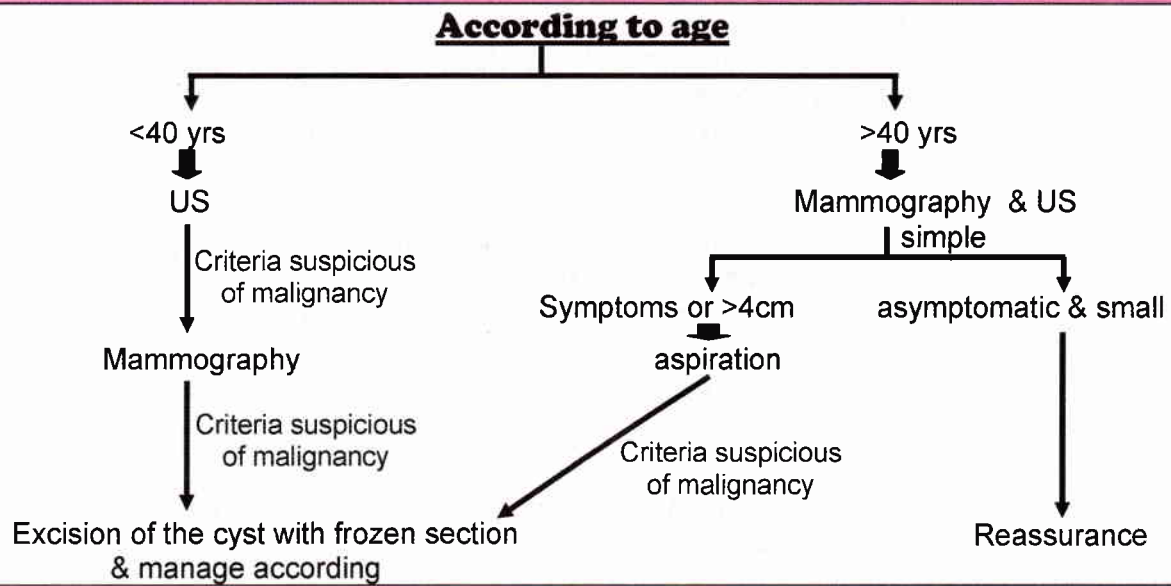
A. Acinar: (arises from duct system):

1- Fibroadenosis (commonest cause)
2- Duct papilloma (blood cyst)
3- Galactocele (obstruction of milk duct)

B. Intra Acinar: occurs in the stroma

1. Sebaceous cyst
2. Traumatic cyst
3. Inflammatory (TB, Abscess)
4. Neoplastic (degenerating carcinoma)
5. Dermoid cyst
6. Hydatid cyst

Management of any breast cyst



Breast Pain (Mastalgia)

➔ **It is one of the commonest complaints**

✸ Causes

I. MAMMARY (CYCLIC / NON CYCLIC)

a. physiological
b. pathological : 1. **Fibroadenosis (commonest)**
2. Breast abscess
3. Mondor's dieases (superficial thrombophlebitis)
4. Trauma
5. Duct ectasia
6. Sarcoma
7. Advanced carcinoma (pain is manifested in only 10% of patients).

II. EXTRAMAMMARY :

- Premammary (infection of Montgomery glands)
- Retromammary e.g. Trietz'syndrome (inflammation of costochondral junction)

Fibrocystic disease of the breast:

➢ **See before.**

Breast abscess

Clinical picture:

1. **Stage of Milk Engorgement:**
   - ⇨ **Symptoms:**
     - **Dull aching** pain.
     - **Mild** persistent pyrexia.
   - ⇨ **Signs:** enlargement & induration of the breast *with no signs of inflammation.*
2. **Stage of Cellulitis (Mastitis):**
   - ⇨ **Symptoms:**
     - The pain worsens
     - **Continuous high** pyrexia
   - ⇨ **Signs:**
     - **Diffuse** redness, hotness & tenderness of the breast (signs of inflammation)
     - Enlarged elastic tender LNs.
3. **Stage of Acute Abscess:**
   - ⇨ **Symptoms:**
     - **Throbbing** pain.
     - **Discharge** (pus).
   - ⇨ **Signs:**
     - **Hectic** fever (i.e. at night it may reach 40° or more due to absorption of toxins due to vasodilatation).
     - **Edema of the overlying skin.**
     - No response to medical treatment. (Persistence of local signs > 5 days or severe systemic upset > 2 days after full antibiotic treatment)
     - Fluctuation is a late sign.

       (NEVER WAIT FOR FLUCTUATION IN BREAST ABSCESS)
4. **Stage of Chronic Abscess: (See later)**
   - Attacks of remission & exacerbation
   - Tender swelling with yielding center **(Paget's Test)**.

Investigations:

(It's mainly a clinical diagnosis)

1. **TLC, ESR & CRP** → Increased.
2. **Culture & sensitivity** after drainage and to exclude mastitis carcinomatosis.
3. **U/S** → for detection of maturity of pus loculus and its location.

Treatment:

a) **Engorgement:**
- Evacuate the breast with a breast pump in combination with hot backs

b) **Cellulitis:**
- As before with use of anti staph antibiotics (fluclxacellin or Augmentin ®) and analgesics , if the child is older than 9 monthes weaning should be adviced

c) **Stage of pyogenic abscess :**

I- General anesthesia.

II- Incision:

a- Radial incision of the skin, not reaching areola

b- if small abscess → circum-areolar incision may be used for cosmetic purpose.

c- Counter incision might be needed to leave a drain (if the abscess is large & in a non dependant region).

III- Introduce finger to destroy loculi and send pus for C & S.

IV- Antibiotics & postoperative dressing (till healing is complete).

V- Drain is removed when drainage stops

Mondor's disease

Definition:

- Superficial thrombophlebitis of the breast.

Clinical picture:

- Local pain & redness (it may cause skin gangrene)

Treatment:

- Rest of the arm, the condition usually subsides spontaneously.

DD Nipple Discharge

✸ Causes

1- **Physiological :** serous discharge during pregnancy

2- **Pathological :** commonest cause is duct ectasia

Causes	Nature	Origin
1. Duct ectasia	Creamy/bloody	One or more duct
2. Fibroadenosis	Brownish/greenish	One or more duct
3. Duct papilloma (commonest cause of bloody discharge)	Bloody	One duct
4. Duct carcinoma	Bloody	One duct
5. Contraceptive pills	Milky/serous	Multiple ducts
6. Hyperprolactinemia	Milky	Multiple ducts
7. Infection	Purulent	More than one duct
8. Trauma	Bloody	

Duct ectasia:

Clinical picture:

Type of patient

- Middle-aged female
- More common in **smokers**.

Symptoms

- May be **asymptomatic** or presenting by one of the following:

1. **Nipple discharge:**

1) Arises from one or more ducts

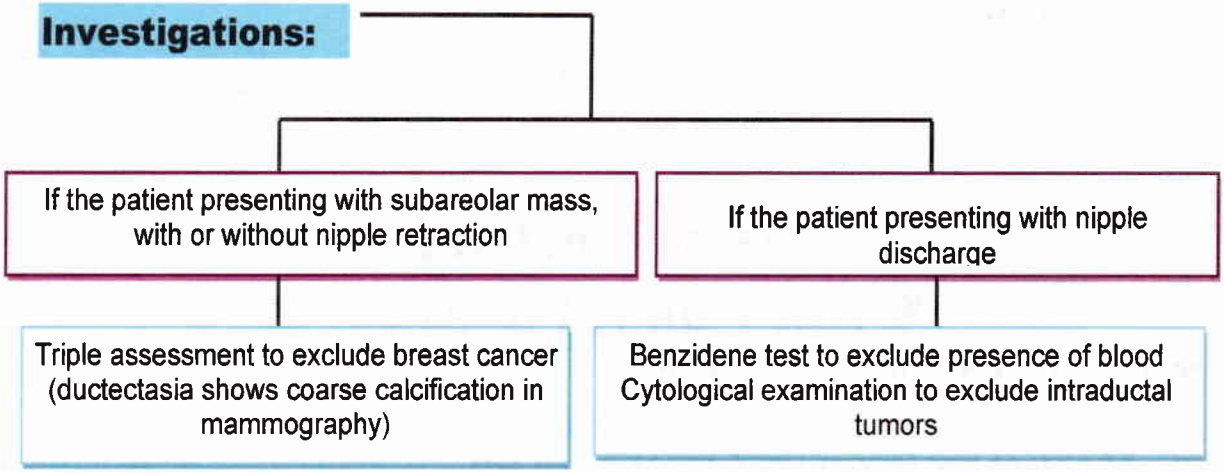
2) May be creamy white, serous, yellowish or blood-stained

2. **subareolar Painless** or painful **swelling** if an abscess develops
3. Recurrent and chronic mastitis

Signs

- The affected area may be hard with skin dimpling & retraction of nipple (Fibrosis)

Investigations:



Treatment:

1) Early & mild cases are treated by combination of antibiotic (flucloxacillin & mitronidazole).
2) Correction of nipple inversion.
3) Persistent cases are treated by excision of major duct through circumareolar incision (Hadfield's operation).

Fibrocystic disease of the breast:

- **See before.**

Duct papilloma:

Clinical picture:

Type of Patient

- 30-40 years female with **bleeding per nipple**.

Symptoms

1. Discharge:
   - Bloody or blood stained nipple discharge 50%. (Commonest symptom).
   - May be serosanginous discharge.
2. Swelling → retention cyst.
3. No pain.

Signs

1. **Bleeding per nipple:**
   - By pressure on the swelling.
   - If there is no palpable swelling, zonal pressure will reveal the discharge.
2. **Swelling:**
   - Small, fusiform, usually lateral to the areola with its long axis pointing to the nipple.
3. **Axillary LNs:** are not enlarged.

DIFFERENTIAL DIAGNOSIS

Investigations:

1) **Benzidine test** → to make sure is it blood or not.
2) **Galactography** the papilloma appears as a regular filling defect.
3) **Mammography** → to screen the rest of the breast and the other breast.

Treatment:

- It's a **pre-cancerous (10%),** so the treatment is:
  1. **Micro-dochectomy** (remove the affected duct) through circumareolar incision and wedge of the tissue 2.5 cm around it.
  2. Histopathology.

Breast Handouts

Breast Pain (Mastalgia)

➔ **It is one of the commonest complaints**

✸ Causes

III. MAMMARY (CYCLIC / NON CYCLIC)

c. physiological
d. pathological : 1. **Fibroadenosis (commonest)**
2. Breast abscess
3. Mondor's dieases (superficial thrombophlebitis)
4. Trauma
5. Duct ectasia
6. Sarcoma
7. Advanced carcinoma

IV. EXTRAMAMMARY :

- Premammary (infection of montogomery glands)
- Retromammary e.g. Trietz'syndrome (inflammation of costochondral junction)

✸ Diagnosis

i. Clinical assessment:

A- History:

1) Personal history:

- Age:
  a) Fibroadenoma → extremes of reproductive age
  b) Most of breast cancer → after the age of 50 yrs
- Other risk factors for cancer breast:
  - Menstrual history, marital status
  - Menstrual irregularity
  - Early menarche & late menopause
  - Nullipara
  - Non lactating lady (if < 18 y).
  - Contraceptive pills.

2) HPI:

- Pain with its nature:
  (onset, course, duration, site, character, radiation,& relation to menstrual cycle) e.g.
  a) cyclic pain → fibroadenosis or hormonal variation
  b) throbbing pain → breast abscess
  c) continuous pain → late malignancy

- Swelling:
  a) Cyclic → fibroadenosis
  b) Accidental onset, short duration with toxic manifestation abscess
  c) Accidental onset , short duration , rapidly progressive(ms)+ cachexia → cancer
- Nipple discharge:
  a) Serous discharge → fibroadenosis (may be black or greenish)
  b) Bloody discharge → cancer breast
  c) Pus → abscess

3) Past history:

- Cancer breast of the other breast
- Medication specially hormones
- Stress

4) Family history of cancer breast

B- Examination:

1) Underlying breast lump.
2) Breast discharge.
3) Examination of axillary LN (see breast lump)

ii. Investigations :

1. **Mammography:**
   a) Detect non plapable breast lesions
   b) Exclude occult in both breasts.
2. **US:** diagnosis of nature of breast lump if present
   a) Cystic : it could be benign or malignant (helped by aspiration cytology).
   b) Solid: it could be benign or malignant
3. **Biopsy:**
   a) FNABC b) Core-cut needle c) Open history

iii. Treatment:

1- If breast mass is present :
► TTT according to cause e.g.
- Drainage of breast abscess
- Treatment of cancer breast according to the stage:
  Surgical excision , radio, chemo, and / or hormonal therapy

2- If there is no mass → treated as fibroadenosis:

a. Minor Pain:
- Analgesics → NSAID
- Breast support → Firm bra
- Psychological support → reassurance
  - Tell the patient that the pain is not secondary to cancer (but do not tell that patient that nothing is wrong)
  - Inform the patient that her pain will not ↑ the risk of developing cancer
- Diet:
  - Avoid caffeine & nicotine
  - Reduce fat.

b. Moderate to severe pain:
- Primrose oil (single morning dose)
- Regulation of the cycles by OCP

Another way of enumeration is:

A- Cystic swellings:

1- Arising from the duct system:
- a) Cyst in fibroadenosis
- b) Papillary cystadenoma
- c) Galactocele

2- Arising from the stroma:
- a) Sebaceous cyst.
- b) Blood cyst
- c) Hydatid cyst
- d) Abscess
- e) Degenerative carcinoma

B- Solid swellings:

1. Small to moderate size:
   - a- Early cancer breast
   - b- Traumatic fat necrosis
   - c- Fibroadenoma
2. Large size:
   - a- Late cancer breast
   - b- Diffuse hypertrophy.
   - c- Cystadenoma phylloides

Breast discharge

i. Clinical assessment:

A- History:

a. Personal history:

- Age:
  - a) Fibroadenosis → extremes of reproductive age
  - b) Most of breast cancer → after the age of 50 yrs
  - c) 2% of breast cancer → before the age of 30yrs
- Other risk factors for cancer breast:
  - Menstrual history, marital status
  - Early menarche & late menopause
  - Nullipara
  - Non lactating lady (if < 18 y).
  - Contraceptive pills.

b. HPI:

- **Nipple discharge:**
  (color, amount, odor, unilateral or bilateral)
  - a) Character serous, bloody, etc...
    1. Clear serous fluid → fibroadenosis
    2. Black or greenish (altered blood) → fibroadenosis pr duct ectasia
    3. Bloody discharge → duct papilloma, papillary cyst-adenoma or carcinoma of the breast
    4. Pasty material → comedo carcinoma
    5. Pus → breast abscess
    6. Milk → galactorrhea (e.g. hyper-prolactinemia)
  - b) Location (bilateral or bilateral)
- **Pain** with its nature (onset, course, duration, site, radiation & relation to menstruation)
  - a) Cyclic (premenstrual) e.g. Fibroadenosis
  - b) Dull aching e.g. duct ectasia

c) Throbbing pain e.g. breast abscess
d) continuous pain e.g. late malignancy

- **Lump:**
  a) Cyclic → fibroadenosis
  b) Accidental onset, short duration with toxic manifestation → abscess
  c) Accidental onset, short duration , rapidly progressive course(ms) cachexia → cancer

c. **Past history cancer breast of the other breast**
d. **Family history of cancer breast**

B- Examination:

☞ **General:**
1.Toxemia
2. Metastasis (liver, spine, PR)

☞ **Local:**
1. Discharge: differential squeeze by zonal pressure to identify the site the discharge is coming from (& if it's from one or multiple duct)
2. Lump & its relations to surroundings
3. LNs examination (axillary & supra –calavicular LNs bilaterally)

ii. Investigations : (as breast pain +)
1) Benzidine test →for occult blood
2) Cytology → for exfoliated cells
3) Mammography & sonography
4) Galactography may be needed
5) Investigations for hyper-prolactinaemia
   a) Serum Prolactin, if elevated
   b) CT scan for cella tursica to exclude pituitary adenoma
6) Purulent discharge → Gram stain, C/S

- **in cases proved to be malignant:-**
  - Mirror image biopsy (in lobular carcinoma)
  - Sentinel LN biopsy
- **Other investigations:**
  - Hormonal replacement assay
  - Survey for metastasis (bone scan , lung CT, Liver U/S)
  - Follow up by tumor marker (CA 15.3)

iii. Treatment:

▶ **Bloody nipple discharge (Benzidine test +ve)**

a) If associated with lump:
   - Remove the lump + histopathology
b) If not associated with lump → Zonal Pressure:
   1. From One duct (duct papilloma) → micro-dochectomy &histopathology
   2. From many ducts → according to age
      - if the patient > 40 yrs (duct ectasia or multiple duct papilloma) major duct excision is done.
      - if the patient < 40 yr → observe until:
        1. Disappearance of the discharge
        2. Apperance of lump → removal of lump + histopathology
        3. localization to one duct → micro-dochectomy +histopathology
      4. Patient reach 40 yrs → major duct excision.

Chest & Back

DIFFERENTIAL DIAGNOSIS

DD of Chest Wall Swellings

- ☑ **Skin:**
  - Hemangioma, hematoma, sebaceous cyst, abscess
- ☑ **Subcutaneous tissue:**
  - Lipoma neurofibroma, neurosarcoma
- ☑ **Intercostal muscles**
  - Rhabdomyoma - rhabdomyosarcoma
- ☑ **Ribs**
  - Chondroma- chondrosarcoma, osteoma, osteosarcoma, osteomyelitis
- ☑ **Intercostal a. aneurysm**
- ☑ **Others:**
  - Chronic empyema necessitans
  - Cold abscess
  - Surgical empyhesma

DD of swellings of the back

- ☑ **Skin:**
  - Hemangioma, hematoma, sebaceous cyst, abscess
- ☑ **Subcutaneous tissue**
  - Lipoma neurofibroma, neurosarcoma
- ☑ **Back muscles**
  - Rhabdomyoma - rhabdomyosarcoma
- ☑ **Midline specific swellings**
  - Meningiocele
  - Spina bifida
  - Sacrococcygeal teratoma
- ☑ **Lateralized swellings:**
  - Lumbar hernia
- ☑ **Others:**
  - Cold abscess

Upper limb
&
Lower limb

Masses

D.D of a Swelling in the Axilla

✸ Causes

- **Parietal swelling:**
  - Skin:
    - Abscess. Red, hot and tender.
    - Sebaceous cyst. Cystic swelling that shows a punctum usually.
    - Haematomas.
    - Haemangioma.
  - S.C tissue:
    - Lipoma.
    - Neurofibroma. Tender but painless
    - Neurofibrosarcoma.
  - Muscle layer: fibrosarcoma. Hard and rapidly progressive.
- **Vascular swelling:**
  - Axillary vessels:
    - Aneurysm of the axillary artery. Shows systolic thrill, expansile pulsations, burit……
    - A-V malformation. Shows continuous thrill.
  - Axillary LNs:
    - Lymphadenitis: acute & chronic (non-specific & specific e.g. TB lymphadenitis).
    - Malignancy: lymphoma & metastatic carcinoma.
- **Musculoskeletal:**
  - Muscular: fibrosarcoma
  - Bone e.g. ribs: cold abscess, chondrosarcoma,
    Humrerus: osteoma, osteosarcoma, osteoclastoma
- **Breast:** carcinoma of the axillary tail of the breast.

✸ Diagnosis

- **Most common causes are:** axillary lymphadenopathy due to:
  1. Lymphadenitis.
  2. Malignancy.

Axillary lymphadenitis:

☑ **A. acute lymphadenitis:**

- **C/O:** painful swelling of short duration.
- **O/E:**
  - Enlarged tender matted LNs.
  - Usually apparent source of infection in the catchment's area, e.g. the breast. Latent abscess may form & the swelling becomes cystic.

☑ **B. TB lymphadenitis: more in children:**

- **C/O:** slowly growing swelling.
- **O/E:**
  - Firm matted LNs.
  - Later, a cold abscess may form → finally ruptures leaving a TB sinus.

Axillary LN malignancy:

☑ **A. Lymphoma:**

- **C/P:**
  - There is usually other LN swellings in the body.
  - The spleen may be palpable.
- **Investigations:**
  - Biopsy is essential to establish the diagnosis.

☑ **B.Metastatic carcinoma:**

- **C/P:**
  - LNs are hard & painless.
  - Mobile at first & later fixed.
  - The 1ry is usually apparent e.g. in the breast.
- **Investigations:** Directed to the 1ry lesion, e.g. breast carcinoma:
  - **Laboratory:** alkaline phosphatase for liver & bone 2ries.
  - **Radiology:** U/S (particularly in young ♀), mammography →dense opacity with speculated ill-defined outline & microcalcification.
  - **Instrumental:**
- **Biopsy** (for histology):
  - Excision biopsy (most accurate).
  - Frozen section (practical).
  - True-cut- needle biopsy.
  - Cytology: FNAC.

D.D of a Swelling in the Popliteal Fossa

✸ Causes

➢ Parietal swelling:

☑ **Skin:**

- Sebaceous cyst.
- Haemangioma.
- Abscess.
- Haematoma.

☑ **S.C tissue:**

- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma.

☑ **Muscle layer: fibrosarcoma.**

➢ Vascular:

☑ **Popliteal vessels:**

- Aneurysm of the popliteal artery. Shows systolic thrill, expansile pulsations, burit and decrease on size on proximal compression.
- A-V malformation.

DIFFERENTIAL DIAGNOSIS

- ☑ **Popliteal LNs:**
  - Lymphadenitis: acute & chronic (non-specific & specific e.g. TB lymphadenitis).
  - Malignancy: lymphoma & metastatic carcinoma.

- **Musculoskeletal:**
  - ☑ **Muscular:** (hamstring) fibrosarcoma
  - ☑ **Bony:** osteoma, osteoclastoma, osteosarcoma
- **Semi-membranous bursitis.**
  - ☑ It is a rounded fluctuating swelling that becomes tense on extension and flaccid on flexion of the joint.
- **Baker's cyst.**

✸ Diagnosis

- **Most common causes are:**
  1. **semimembranous bursitis.**
  2. **Baker's cyst.**
  3. **Popliteal artery aneurysm.**

D.D of a Swelling in the Groin (Femoral Triangle)

✸ Causes

Reducible	Irreducible
▪ Reducible ing.hernia	▪ Irreducible inguinal hernia
▪ Saphena varix	▪ Subcutaneous lipoma . slippery edge and non tender swelling.
▪ Femoral aortic Aneurysm Shows expansile pulsations, burit..... .	▪ Inguinal lymphadenitis
▪ Psoas abscess . shows cross fluctuation.	▪ Maldescended testis

✸ Diagnosis

- **Most common causes are:**
  - ☑ **Femoral hernia.**
  - ☑ **Saphena varix.**
  - ☑ **Inguinal lymphadenopathy**

Femoral hernia:

Clinical picture:

☑ **C/P of predisposing factors, e.g.** chronic cough, constipation.

- **Swelling ccc by:**
  - Painless unless complicated.
  - Reducible, unless complicated.
  - Gives expansile impulse on cough, unless strangulated.
  - Direction of descent: downwards → forwards → upwards.
  - Direction of reduction: downwards → backwards → upwards.

☑ **C/P of complications: e.g.** strangulation → painful, irreducible, no impulse on cough, tender + C/P of intestinal obstruction.

Investigations:

- It is a clinical diagnosis

Saphena varix

Clinical picture:

☑ **It occurs with varicose veins of the lower limbs.**

- Varicose veins.
- Swelling, ccc by:
  - Disappears by lying down.
  - Gives a thrill with cough.
  - Site: below & lateral to pubic tubercle.
  - Shape: rounded.
  - Color: bluish.
- C/P of complications (in 2ry V.V), e.g. edema, eczema.

Investigations:

☑ Duplex U/S (of choice)

Inguinal lymphadenopathy:

A. Acute lymphadenitis:

- **C/O:** painful swelling of short duration,**FAHM**.
- **O/E:**
  - Enlarged tender matted LNs.
  - Usually apparent source of infection in the catchment's area. Latent abscess may form & the swelling becomes cystic.

B. TB lymphadenitis:

- **C/O: manifestations** of TB toxemia,slowly growing swelling.
- **O/E:**
  - Firm matted, enlarged non-tender LNs.
  - Later, a cold abscess may form → finally ruptures leaving a TB sinus.

C. Lymphoma:

- **General:** cachexia, anemia, pel epstien fever, pruritis.
- Enlarged painless LN which are rubbery in consistency, Early discrete later on matted.
- There is usually other LN swellings in the body.
- The spleen may be palpable.
- Biopsy is essential to establish the diagnosis.

D. **Metastatic carcinoma:**
- LNs are hard & painless.
- Mobile at first & later fixed.
- The 1ry is usually apparent e.g. in the breast.

DD of Acutely Inflamed Swelling in the Groin

1- Torsion: in maldescended testis (acute epididymorchitis)
2- Strangulated inguinal hernia
3- Strangulated femoral hernia
4- Acute inguinal lymphadenitis
5- Sub. inguinal abscess
6- Rupture adductor longus tendon

✸ Diagnosis:

1. Torsion (see before)
2. Strangulated inguinal hernia

Strangulated Inguinal Hernia

Clinical Picture:

► **Symptoms**
- History of painless swelling that become painful
- Picture of intestinal obstruction : projectile vomiting
  Abd. pain /distention
  Constipation

► **Signs:**
- **General:** bad general condition,shock ,
- **Local:** no expansile impulse on cough, irreducible, tense, tender

Investigations:

- It is a clinical diagnosis

DD of Swollen Limb

✸ Causes

i- Unilateral

►**Acute**
- DVT
- Lymphedema(acute flaria)
- Cellulitis
- Rupture Baker's cyst

►**Chronic**
- Varicose veins
- Chronic flariasis
- Neuro fibromatosis elephantiasis
- Congenital: A-V fistula (local gigantism)

ii- bilateral (causes of generalized edema)
- Hepatic
- Cardiac
- Renal
- Nutritional
- Angioneurotic

✸ Diagnosis

1. DVT :Most serious (see later)
2. Varicose veins

Varicose veins

Clinical picture

☞ **Symptoms:**

- Cosmetic disfigurement, aching discomfort, complications(pig., itching, ulcer)

☞ **Signs:**

➔ History suggestive of DVT

- **General**
  - ➔ Water hummer pulse, bl. pr. (with A_V fistula), dilated Vs crossing inguinal region
- **Local**
  - ➔ Thrill on cough (on blow out)
  - ➔ Fegan sign (facial defect)
  - ➔ Superficial thrombophlebitis → firm cord like tender

Investigations

- **For VV:** Doppler, Duplex: reversal of the bl. flow, incompetent valves
- **For complication:** Arteriography : A-V fistula , Biopsy from ulcer if suspecting Malignancy

Pain

DD of Painful Limb

✸ Causes

1- Traumatic: fracture – dislocation – crush injury
2- Vascular : acute ischemia (empolism , thromposis)
DVT
chronic ischemia (intermittent claudication)
3- Infective: cellulitis – osteomylitis – myositis – septic arthritis
4- Inflammatory : Rh.arthritis – ankylosing spondylitis
5- Degenerative : osteo arthritis- baker's cyst
6- Neurological : sciatica – P.neuropathy
7- Metabolic : Gout
8- Miscellaneous : cramp

✸ Diagnosis

1- Acute ischemia: the most serious.
2- Chronic ischemia
3- DVT

Acute ischemia

Clinical picture

- **Of the cause:** - Embolism : AF,other systems (painless hematuria, hemplagia, MVO)
  - Thrombosis: intermittent claudication, other systems e.g. IHDs
  - History of trauma

DIFFERENTIAL DIAGNOSIS

- **Of ischemia**: 6 Ps: - Pain (is the cardinal symptom), sudden severe pain in the most peripheral part of the limb
  - ➔ Pulseless
  - ➔ Progressive coldness
  - ➔ Palor
  - ➔ Paralysis } late sign
  - ➔ Parasthia }
- **Of complications :** gangrene-chronic ischemia – Volkmann ischemic contracture

Investigations

- **For diagnosis:** Doppler , duplex: absent BL.flow distal to the site of occlusion
  Angiography: block of main tree, no or minimal collaterals
- **For the cause:** ECG , echo , US

Chronic ischemia:

Clinical picture

➔ **Of the cause:** - Atherosclerosis: male>50 yrs- DM, obese ,HTN
- Burger: male 20-40 Yrs , heavy smoker

➔ **Of chronic ischemia:**

➔ **Symptoms**

1- **Pain:** - Claudication pain: cramp like pain mainly in the calf Ms inc. by walking & exercise & dec. by rest only
- Rest pain: burning pain in the dorsum of the foot awakens patient from sleep , relived by uncovering limb & putting it in a dependent position

2- **Other systems:** IHDs (angina), Leriche syndrome , post cibial angina

➔ **Signs**

1- Skin: pale, cold, trophic changes (loss of hair, thin, trophic, with ulcer resistant for healing)
2- Muscle weakness
3- Arteries: weak pulsation

DVT:

Clinical picture

➔ History of pelvic surgery, prolonged recumbency malignancy , previous DVT

➔ **Symptoms:**

- Mostly associated symptomatic, 1st presentation by PE.

➔ **Signs:**

- **General**
  - ➔ Unexplained fever , tachycardia out of proportion to fever (3-7 day post operative)
- **Local**
  - ➔ Pain: aggravated by Ms exercise
  - ➔ Swelling : most reliable physical sign.
  - ➔ Tenderness: on grasping the calf Ms.

Investigations

(Once suspected diagnosis must be confirmed or excluded by accurate investigations)

- **For diagnosis of DVT:**
  - ➔ Doppler, Duplex : ▶if complete obstruction → dead silence
    ▶if partial obstruction → loss of augmentation
  - ➔ Spiral CT (most accurate)

Inguinoscrotal

D.D of a Swelling in Inguinoscrotal Area

✸ Causes

➔ **According to scrotal neck test:**

A- Purely inguinal
B- Inguinoscrotal
C- Purely scrotal.

A-Purely inguinal:

➔ According to impulse with cough

- With impulse on cough:
  - Oblique inguinal hernia (OIH) (Bubanocele)
  - Direct inguinal hernia (DIH)
  - Femoral hernia → more in females and lies below and lateral to the pubic tubercle.
  - Saphina varix → Associated with varicose veins.
- Without impulse on cough
  - Solid:
    - LNs enlarged
      - Inflammatory (acute or chronic)
      - Malignant (1ry or secondary)
    - Testis:
      1. Retractile → The scrotum is well developed and can be pushed in it.
      2. Ectopic → The testis can be pushed medially and not laterally.
      3. Incompletely descened → The testis can be pushed laterally but not medially.
  - Cystic:
    1. Psoas bursa
    2. Femoral a. aneurysm. Shows expansile pulsations, burit …… .
    3. Cystic LNs enlargement
    4. Hydrocele of femoral hernial sac

B-Inguinoscrotal:

According to impulse on cough

1- With impulse on cough:
   - OIH
   - Varicoele (primary)
2- Without impulse on cough:
   - Solid
     - Lipoma of the cord
     - Endemic funiculitis
   - Cystic
     - Congenital hydrocele
     - Infatile hydrocele of the cord
     - Encysted hydrocele of the cord → By gentle traction upon the testis, the swelling moves downwards and becomes less mobile.
     - Hydrocele of the hernial sac of OIH →History of irreducible swelling that becomes irreducible and translucent.

C-Purely scrotal swelling

☑ **From the coverings:**

- Skin
  Boil, sebaceous cyst, epithelioma
- Subcutaneous tissue
  Neurofibroma, cellulites
  (NB no lipoma → no fat in the scortum)
- Tunica vaginalis
  - Cystic:
    - Hematocele
    - Chylocele
    - Vaginal hydrocele
  - Solid
    - Clotted hematocele
    - Calcified hydrocele

☑ **From the contents of testis and epididymis**

- Cystic
  - Spermatocele
  - Epidiymal cyst
  - Hydatid cyst of morgagni
- Solid
  - Inflammatory (chronic specific inflammation as TB and syphilitic gumma)
  - Tumors (e.g. seminoma)

✸ Diagnosis

➢ The most common causes are:

☑ **Oblique inguinal hernia.**
☑ **Hydrocele.**
☑ **Varicocele (especially 1ry)**

Oblique inguinal hernia:

Clinical picture:

☑ **C/P of predisposing factors, e.g**. chronic cough, constipation.

- **Purely inguinal swelling ccc by:**
  - Painless unless complicated.
  - Reducible, unless complicated.
  - Gives expansile impulse on cough, unless strangulated.
  - Direction of descent: directly downwards forwards and medially..
  - Direction of reduction: upwards, laterally and backwards.
  - Internal ring test: +ve.

☑ **C/P of complications: e.g. strangulation** → painful, irreducible, no impulse on cough, tender + C/P of intestinal obstruction.

Investigations:

- it is a clinical diagnosis

Primary vaginal hydrocele:

Clinical picture:

☑ Purely scrotal swelling ccc by being:

- Painless.
- Irreducible.
- No impulse on cough.
- Trans-illumination: translucent.

Investigations:

☑ It is a clinical diagnosis, investigations may be done to:

- Assess the testes, if not palpable: scrotal U/S, if testes are not palpable.
- Routine preoperative investigations.

Varicocele:

Clinical picture:

☑ Inguino-scrotal swelling ccc by:

- Dragging sensation or aching pain.
- Disappears on lying down.
- Fluid thrill on cough.
- **Small secondary vag.hydrocele by pinching test**
- Scrotum of the affected side hangs lower down & it may show varicosities.

☑ C/P of complications: e.g. hypofertility.

Investigations:

☑ For varicocele:

- Doppler or Duplex: detects reversed flow.
- Scrotal or transerectal US.
- Pelviabdominal U/S to exclude 2ry varicocele.

☑ For hypofertility: semen analysis.

D.D of a scrotal swelling

✸ Causes

A- Inguinoscrotal (see before)
B- Purely Scrotal: (see before)

✸ Diagnosis

The most common causes are :

☑ oblique inguinal hernia
☑ Hydrocele
☑ Varicocele

Acute scrotum

✸ Causes:

1- Epididymis : acute epididymorchitis
2- Testis : orchitis-torsion
3- Cord : funiculitis
4- Tunica : byocele-hematocele
5- Torsion of hydatid of Morgagni

✸ Diagnosis:

1- Testicular torsion
2- Acute epididymorchitis

I- Testicular torsion:

Clinical Picture:

► **Symptoms:**

History of trauma

- Sudden severe agonizing pain in scrotum
- Testicular swelling
- Reflex symptoms: nausea, vomiting

► **Signs:**

- General : pallor, sweating, tachycardia
- Local : **scrotum:** swollen, irreducible, red, tender, dimpling at site of gabrunculm,

elevation of scrotum ↑ Pain

Cord : twisting may be felt
Testis : high up, tender

Investigations:

- Doppler: obstructed testicular vessel

II- Acute epididymorchitis :

Clinical Picture:

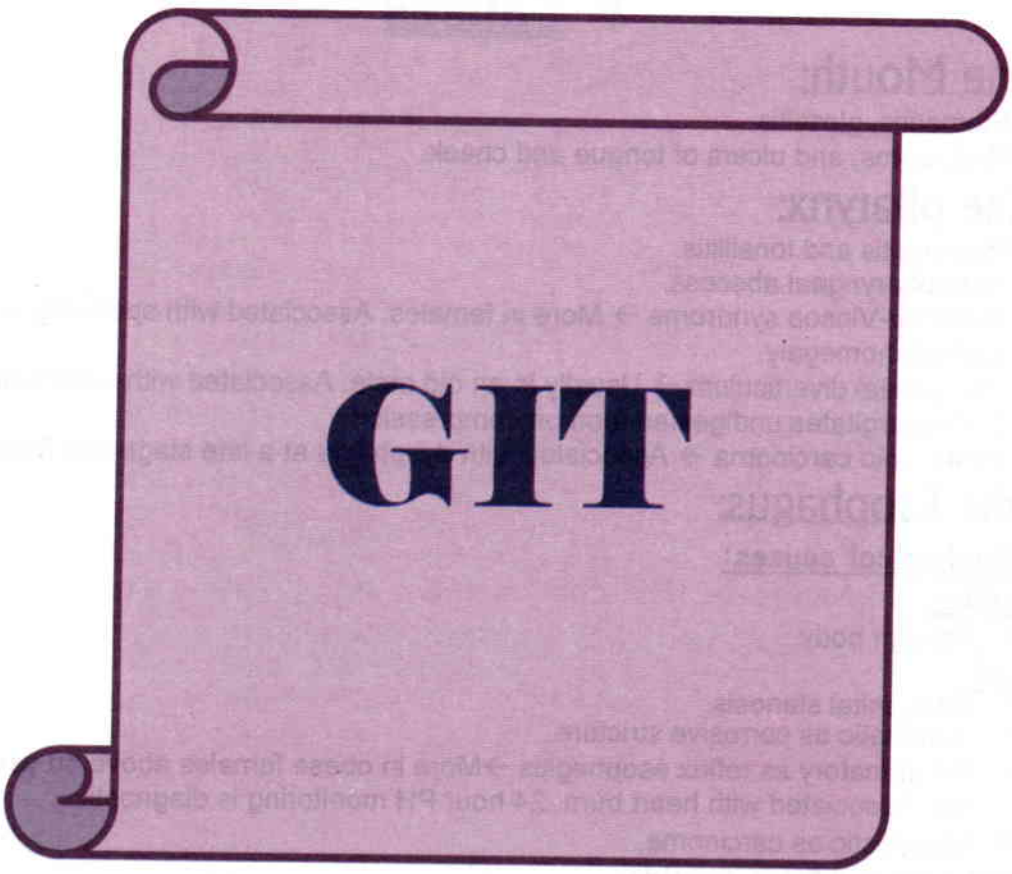
- History of dysuria of adult or elderly

► **Symptoms:**

- General : FAHM
- Local : gradual increasing pain which is

Investigations:

- Urine analysis: pus cells
- Doppler: patent vessels.


GIT

GIT symptoms

D.D of Dysphagia

- **Defiintion:** Difficulty in swallowing

✸ Causes

- **In the Mouth:**
  - ☑ Stomatitis, glossitis
  - ☑ Neoplasms, and ulcers of tongue and cheek.
- **In the pharynx:**
  - ☑ Pharyngitis and tonsillitis.
  - ☑ Retropharyngeal abscess.
  - ☑ Plummer-Vinson syndrome → More in females. Associated with spooning of nails and splenomegaly.
  - ☑ Pharyngeal diverticulum → Usually in an old male. Associated with neck swelling that regurgitates undigested food on compression.
  - ☑ Postcricoid carcinoma → Associated with dysphagia at a late stage and Moure's sign.
- **In the Esophagus:**

A. Mechanical causes:

⇨ **Lumen:**
- Foreign body.

⇨ **Wall:**
- Congenital stenosis.
- Traumatic as corrosive stricture.
- Inflammatory as reflux esophagitis →More in obese females above 40 years old. Associated with heart burn. 24 hour PH monitoring is diagnostic.
- Neoplastic as carcinoma.

⇨ **Compression from outside:**
- Malignant thyroid.
- LNs.
- Thoracic aortic aneurysm.

B. Neuromuscular:
- Achalasia of the cardia.
- Neuritis of glossopharyngeal or vagus nerve.
- Myasthenia gravis, tetanus, rabies.
- Esophageal motility disorder e.g. corkscrew esophagus.
- Hysterical or bulbar palsy.

✸ Diagnosis

- **The most common causes are:**
  - ☑ **1. Achalasia.**
  - ☑ **2. Acaustic stricture.**
  - ☑ **3. Esophageal carcinoma.**

Cardiac achalasia:

Clinical picture:

➔ **Female More in 2nd to 4th decades.**

- **Dysphagia ccc by:**
  - Onset: insidious.
  - Course: initially intermittent, but later constant.
  - Duration: long
  - More to fluids, especially at night.
- **Regurgitation, halitosis**
- **General:** Bad nutritional status, dehydration , Pulmonary symptoms: cough & wheezes.
  Loss of weight: not prominent.

Investigations:

☑ **Radiology:**
- CXR → absence of the gastric air bubble, widwning of the mediastinum.
- Barium swallow: early delayed gastric emptying, later on sigmoid Oes+ parrot peak appearance

☑ **Instrumental:**
- Manometric study: disorganized perstalasis, pr. in the high pressure zone>25mmhg
- Esophagoscopy: for diagnosis (shows wide red Oes. filled with dirty water)+ exclusion of malignancy.

Esophageal carcinoma:

Clinical picture:

More common in ♂ > 50:

☑ **Dysphagia ccc by:**
- Rapidly progressive, to solids > fluids with excessive salivation, regurgitation, loss of Wt. & apetite
- **Signs:**
  - G: cachexia dehydration, chest infection

☑ **Pulmonary symptoms:** Cough & wheezes.

☑ **Loss of weight:** prominent.

Investigations:

For diagnosis
- Esophysgope: early endoscopy is the key for good result +biopsy +cytology
- Ba swallow: shows rat tail, shouldering, or irregular filling defect

Corrosive esophageal injury:

Clinical picture:

More in children

☑ **History of caustic agent drinking.**

☑ **Associated burns to lips, tounque & oropharynx.**

☑ Odynophagia.

☑ Dysphagia: ccc by:
- **Onset:** acute.
- **Course:** stationary.
- **Duration:** long.
- **Pulmonary symptoms:** cough & wheezes.
- **More to solids.**
- Regurgitation.
- Failure to thrive.

Investigations:

- **Radiology:** barium swallow → multiple irregular strictures.
- **Instrumental:** esophagoscopy.

D.D of Dyspepsia

Definition:

Discomfort related to meals.

Causes

☑ **Esophageal causes:**
- GERD.

☑ **Gastric causes:**
- Chronic gastric ulcer.
- Chronic gastritis.
- Gastric carcinoma

☑ **Duodenal causes:**
- Chronic duodenal ulcer.
- Duodenitis.

☑ **Biliary causes:**
- GB stones.
- Chronic cholecystitis.
- GB carcinoma.

☑ **Pancreatic causes:**
- Chronic pancreatitis.
- Pancreatic carcinoma.

☑ **Congestive dyspepsia** (portal HTN)

☑ **Appendicular dyspepsia** (chronic appendicitis)

☑ **Colonic dyspepsia** specially CA caecum

Diagnosis

☑ **PU is the most common.**

☑ **Gastric carcinoma is the most dangerous.**

DD of pyloric obstruction

➔ It's a serious condition which has many causes acc. to the patient age

Etiology

A- Infants & children: - CHPS
- Corresives
- FB

B- In adults:
- Chronic healed DU
- Pyloric canal ulcer
- Malignant obstruction i.e. CA stomach
- pressure from outside i.e. CA head of pancreas, or metastasis in the porta hepatis
- Others: as chrons disease, TB.

Clinical picture

- **Symptoms:**
  - Of intestinal obstruction: - Abdominal pain & distention,
    - Projectile vomiting non-bile stained
    - Absolute constipation

Signs:

- General: dehydration, under Wt, chest infection
- Local: upper abdominal distention, visible peristalsis

- **C/P of the cause:**
  1- CHPS: infant 2-6 wks presented as above+ olive like lump in the Rt. hypochondrium
  2- Healed DU: history of periodic pain that's now lost & become cont.
  O/E: suction splash
  3- CA pylorus: fall in one of the following group:
  - Dyspepsia resistant for treatment for> 2 wks
  - Cachexia
  - Obstructive group: vomiting
  - Epigastric mass
  - Metastatic: jaundice, malignant ascitis
- **C/P of the complication:**
  1. Dehydration: sunken eyes, dry tongue, inelastic skin
  2. Metabolic alkalosis : decrease resp. rate, parathesia
  3. Hypokalemia: hypotonia, arrythemia

Investigations

i- Laboratory:
- Serum electrolytes: dec. Na, K, & Cl.
- Tumor markers if suspecting carcinoma

ii- Radiological:
- Ba meal: - Bengin obstruction → dilated stomach & delayed emptying
  - Gastric cancer → irregular filling defect
- Abdominal US:
  - CHPS → thickening of the pyloric ms + dilated stomach
  - Gastric cancer → liver secondaries
- CXR: chest infection

iii- Instrumental:
- Endoscopy: stenosed pyloric ring or take biopsy if suspecting malignancy

Treatment

A. Pre-operative preparation:
1- NG suction & wash
2- IV alimentation
3- Correction of fluid & electrolytes (Na., K, & Cl) & acid base balance (alkalosis)
4- Chest physiotherapy & antibiotics

B. Specific treatment: acc. to the case
1- CHPS: Ramsted's pyloromyotomy
2- healed DU: truncal vagotomy + gastrojejonostomy
3- gastric cancer:
- Operable → total radical gastrectomy
- Inoperable : if resectable → palliative gastrectomy
  if irresectable → metal stenting

Vomiting

✸ Causes:

➔ According to age

In the neonates:
- Pylorospasm
- Gastroenteritis
- Duodenal atresia: - True: failure of recanalization
  - False → annular pancrease
- Wilikies ds.
- Band of ladd
- Intracranial hge.
- High int obstruction (duodenum, jeujenium)
- Intussusception

In the adults:

I- GIT:

a. Pyloric obstruction due to:
- Chronic duodenal ulcer
- Chronic pyloric canal ulcer
- Malignant obstruction (CA stomach)
- Others: Chrons ds., TB., enlarged LNs (porta hepatis in CA head of pancreas)

b. Acute abd.: • Appendicitis • Pancreatitis • Cholecystitis • Int. obstruction

II- **CNS disorders:** e.g. vestibular neuritis, migraine, inc. ICT)

III- **metabolic:** DKA, Addison disease

IV- **infections:** G.E, hepatitis

✸ Discuss

1- CHPS

Clinical picture

➔ infant 2-6 WKs

☞ **Symptoms:** projectile vomiting (non-bile stained), constipation, failure to thrive

☞ **Signs:**
- **General:** - Wt loss
  - Dehydration(sunken eyes-depressed fontanels-dry tongue-inelastic skin-oliguria)
  - Bad chest
- **Local**: upper abdominal distention, visible peristalsis, olive like lump in the Rt. hypochondrium(tumor sign)

Investigations

- **For diagnosis:** 1- US (most diagnostic) → thickening of the pyloric ms, dilated stomach
  2- Gastrographin study: dilated stomach, delayed emptying, persistent narrow pyloric canal(string sign)
- **For complications:** • CXR • CBC • KFT
  • Serum electrolytes (↓ Na, K, CL)

2- Pyloric obstruction

Clinical picture

- **symptoms:** .projectile vomiting(non bile stained), constipation
- **signs:**
  - **General:** dehydration, chest infection, Wt loss
  - **Local:** upper abd. distention, visible perstalisis
- **C/P of the cause:**
  1. **Healed duodenal ulcer:** history of periodic pain of DU, now lost & become cont. sucction splash
  2. **CA pylorus:** (falls in one of 5 groups) male >40 Yrs presented with
     - Dyspepsia
     - Cachexia
     - Epigastric mass
     - Obstruction: vomiting
     - Metastasis

Investigations

- **Lab.:**
  - CBC
  - Serum electrolytes (↓ Na, K, CL)
  - KFT
  - Tumor markers
- **Radiology:**
  - Ba meal → benign obst.: dilated stomach , soup dish delayed gastric emptying
  - CA stomach: irregular filling defect, ulcer niche, Carmen meniscus, linitis plastica
  - CX ray: chest infection
  - Abd.US: liver metastasis,
  - Upper GI endoscopy: to exclude malignancy& take biopsy, endoluminal US

Abdominal distention

Etiology

1- Fetus (pregnancy is the commonest cause)
2- Flatus
3- Feces
4- Fat
5- Fluid (free/ encysted ascitis)
6- Large solid tumor such as:
   - Fibroid
   - Causes of hepatomegaly
   - Causes of splenomegaly
   - Renal mass e.g. polycystic kidney
   - Retroperitoneal sarcoma

I- Fetus

- Pregnancy is the commonest cause
- C/P: female in the child bearing period with features of pregnant uterus:
  - Smooth, firm, dull swelling arising out of the pelvis esp. after the 1st12 weeks
  - Bimanual examination reveals that it moves with the movement of the cervix & cervix is soft & patulous

2- Flatus

- Gas in the intestine can cause considerable abdominal distention
- **Etiology:**
  - Mechanical intestinal obstruction, paralytic ileus, acute dilatation of the stomach

DIFFERENTIAL DIAGNOSIS

Clinical picture

- **Symptoms:**
  - Of intestinal obstruction
- **Signs:-**
  - Inspection: may be visible peristalsis
  - Palpation: suction splash esp. with pyloric obstruction
  - Percussion: hyperresonance

3- Feces

- It's fecal impaction

Etiology

Hirshsprung ds, chronic int. obstruction (CA. colon)

Clinical picture

- **Symptoms:**
  - History of change in the bowel habits, or chronic constipation, or spurious diarrhea
- **Signs:**
  - Inspection: fullness in the flanks
  - Palpation: hard firm indentable masses mainly in the flanks or in the lower epigastrium
  - P/R: rectum full of feces, but in case of obstruction → empty rectum

Investigations

- Plain X-ray: abdominal erect → air fluid level
  supine → distended gas bowel
- Abdominal US.
- Barium enema

4- Fat

- Rarely causes abdominal distention (distention due to heavy thick omentum)

5- Fluid: ascitis

A- FREE FLUID IN THE PERITONEAL CAVITY

- **Etiology:**
  1- Increase in the portal venous pr.: - Prehepatic
  - Hepatic
  - Posthepatic

  2- Causes of hypoproteinemia
  3- Causes of chronic peritonitis
  4- Chylous ascitis
- **C/P:** Signs: - Fluid thrill - Shifting dullness

B- FLUID ENCYSTED IN A CYST

- **Etiology:**
  - Ovarian cyst
  - Full urinary bladder
  - Pancreatic pseudo cyst
  - Mesentric cyst
  - Hydatid cyst

6-other swellings.

1. Cancer colon (see before).
2. Splenomegaly(see before)

D.D of Acute abdomen

✸ Causes

➢ Group 1: Thoracic problems:

- ☑ Rt. Pneumonia:
- ☑ Marked chest symptoms, minimal abdominal tenderness and there is no rigidity.
- ☑ Tonsillar tummy:
- ☑ Child with acute tonsillitis □ swallows pus □ abdominal colic.
- ☑ Diaphragmatic pleurisy.
- ☑ Myocardial infarction.

➢ Group 2: Upper Abdominal problems:

- ☑ **Perforated Peptic Ulcer:**
  - History of dyspepsia is present.
  - Plain X-Ray shows air under the diaphragm.
- ☑ **Acute Cholecystitis:**
  - Pain in the right hypochondrium
  - Fever is higher.
  - U/S will confirm the diagnosis.
- ☑ **Intestinal Obstruction:**
  - Repeated vomiting.
  - Absolute constipation.
  - Multiple fluid levels in X-Ray abdomen erect.

➢ Group 3: Lower Abdominal Problems:

- ☑ **Non-specific Mesenteric Lymphadenitis:**
  - Common in children.
  - There is shifting tenderness
- ☑ **Regional ileitis.**
- ☑ **Deep iliac adenitis:**
  - Child with septic focus in LL
  - Pain in iliac fossa, psoas spasm
  - Flexion deformity, high fever and O/E
  - Tender nodular fixed mass in iliac fossa very close to inguinal ligament.
- ☑ **Mickle's Diverticulitis.**
- ☑ **Perforated ileal typhoid ulcer:**
  - History of typhoid, tenderness allover the abdomen X-Ray□ free gas in peritoneum (erect □gas under diaphragm).

➢ Group 4: Pelvic problems:

- ☑ **Disturbed right ectopic pregnancy:**
  - History of amenorrhea.
  - Shock.
  - Vaginal bleeding.
  - Tender cervix.
- ☑ **Acute salpingitis:**
  - Fever, vaginal discharge, tenderness often bilateral.
- ☑ **Midcyclic pain (Mittelschmerz)**
- ☑ **Twisted right ovarian cyst from appendicular mass.**
- ☑ **PID:**
  - Vaginal discharge, bilateral pain, mass felt on PV.

Group 5: Urological problems:

- ☑ **Right ureteric coli:**
  - Pain from loin □ groin, pain does not increase with cough, patient writhing on himself while in appendicitis patient lies flat as movement increases pain.
- ☑ **Rt. Pyelonephritis:**
  - Fever 40°C + rigors, tender pain, dysuria.

Group 6: Neurological Problems:

- ☑ **Disease of the spine:**
  - Acute osteomyelitis & Pott's of dorsolumber veretebrae.
- ☑ **Herpes Zoster in 10th, 11th, 12th thoracic nerves.**
- ☑ **Others:**
  - Diabetic abdomen.
  - FMF.

✸ Diagnosis

The most common causes are:

- ☑ 1.Acute appendicitis.
- ☑ 2.Acute cholecystitis.

Acute appendicitis:

➢ See page

Acute cholecystitis:

Clinical picture: ccc 6 F's patient:

(Female, Fatty, Forty/Fifty, Fertile, Filthy)

- ☑ **C/P of biliary stones**: biliary colic, biliary dyspepsia & reflex retrosternal chest pain ± attack of cholecystitis:
- ☑ **Symptoms:**
  - FAHM
  - Pain: 1st diffuse upper abdominal colicky, later, localized Rt. Hypochondrial dull aching.
  - Nausea & vomiting.
- ☑ **Signs:**
  - Fever & tachycardia.
  - Rigidity, tenderness, rebound tenderness in the Rt. Hypochondrium.
  - Special signs: Leak's sign & Boa's sign.
  - GB mass: may be difficult to feel due to rigidity.

Investigations:

- ☑ **Laboratory:**
  - **CBC** → PMN leucocytosis.
- ☑ **Radiological:**
  - **U/S** → stone (sensitivity 97%), distended GB.
  - **HIDA scan:** most accurate, least practical.

D.D of Anal Pain

Causes

- ☑ Anal fissure.
- ☑ Prolapsed strangulated piles.
- ☑ Perianal suppuration.
- ☑ Acute perianal hemorroids.
- ☑ Carcinoma of the anus.
- ☑ Proctalgia fugax.

Diagnosis

➢ The most common causes are:

1. **Anal fissure.**
2. **Anorectal abscess**

Anal fissure:

Clinical picture:

More in middle aged women.

☑ **C/P of predisposing factor, e.g.** constipation.

☑ **C/P of fissure:**

- Pain:

- Onset: suddenly at defecation.
- Offset: suddenly: about 1 hr after defecation.
- CCC: sharp agonizing.
- Course: course: may have remissions for days/weeks.
  - Constipation (to avoid pain)
  - Bleeding: slight streaks on surface of stools.
  - Slight anal discharge.
  - Reflex symptoms: dysuria, dysmenorrheal

☑ **signs:**

➢ **In acute cases:**

- **By inspection:**
  - tightly contracted anal verge, puckerd anus
  - Small tear may be seen by gently separating the gluteal folds
- **DRE:** better to be avoided because it's very painful

➢ **In chronic fissure:**

- **By inspection:**
  - Fissure can be seen, anal papille or sentinel bile can be seen
- **DRE:** fissure is fibrotic & indurated, sphincter is fibrosed.

Investigations:

☑ **It is a clinical diagnosis, investigations may be done for:**

- Exclusion of D.D or 2ry causes, e.g. crohn's disease.
- Routine pre-operative investigations.

Anorectal abscess:

Clinical picture:

☑ **Symptoms:**
- ***General:*** FAHM
- ***Local:*** throbbing perianal pain inc. by movement & interferes with sitting or walking.

☑ **Signs:**
- General: fever & tachycardia.
- Local: red, hot & tender swelling.

NB: pain & constitutional symptoms are not marked.

Investigations:

☑ **Laboratory:** CBC → PMN leukocytosis.

☑ **Radiology:** U/S → for pelvirectal abscess.

Peptic ulcer:

➢ **See GIT book**

Gastric carcinoma:

➢ **See GIT book**

Masses of the GIT

DD of Swellings in the Right Hypochondrium

✸ Causes:

- **Parietal Swelling:**
  - ☑ **Skin:**
    - Abscess
    - Sebaceous cyst.
    - Hematomas.
    - Hemangioma
  - ☑ **S.C tissue:**
    - Lipoma.
    - Neurofibroma.
    - Neurofibrosarcoma
  - ☑ **Muscle layer:**
    - Fibrosarcoma.
    - Incisional hernia.
- **Intraabdominal swellings:**
  - ☑ **Visceral:**
    - Liver:
      - Amoeobic hepatitis → Occurs usually in endemic areas and responds to metronidazole within 72 hours.
      - Hydatid cyst →usually occurs in endemic areas (e.g Algeria).
      - Liver cirrhosis → There may be history of the cause and manifestations of cirrhosis, e.g., bleeding tendency
      - Cancer → Usually rapid deterioration of the condition in a cirrhotic pt. CT scan is accurate and level of alpha feto protein above 2000 ng/dl is diagnostic.
    - GB:
      - Mucocele.
      - Empyemea → Usually there is history of cholecystitis.
      - With malignant obstructive jaundice → Characterized by painless progressive jaundice especially in old age.
      - GB carcinoma → Rare and occurs usually in females
    - Hepatic flexure: colonic carcinoma → More in females and usually presents by a mass rather than I.O.
    - Rt. Kidney:
      - Hydronephrosis → There may be history of the cause.
      - Pyonephrosis.
      - Solitary cyctic kidney.
      - Polycyctic kidney.
      - Hypernephroma.
      - Wilm's tumor → Usually in a child between 3-4 years old. Present by abdominal swelling in that does not cross the midline in 90% of cases.
    - Rt. Suprarenal gland: malignant tumors.
    - Pancreas: pancreatic pseudocyct.
  - ☑ **Retroperiotneal sarcoma.**

✸ Diagnosis:

➢ The most common causes are:

- ☑ Mucocele of the GB.
- ☑ Pancreatic pseudocyst.
- ☑ Renal cell carcinoma.

Mucoele of the GB

Clinical Picture

- ☑ **Characterized by: 6 F's patient (Female, Fatty, Forty, Fifty, Fertile, Filthy)**
- ☑ **Past history of biliary colics:**
- ☑ **Symptoms (of acute cholecystitis):**
  - FAHM.
  - Pain: 1st diffuse upper abdominal colicky, later localized Rt. hypochondrial dull aching.
  - Nausea and vomiting.
- ☑ **Signs of (acute cholecystitis):**
  - Fever and tachycardia.
  - Rigidity, tenderness, rebound tenderness in Rt. hypochondrium.
  - Special signs: Leak's sign and Boa's sign.
- ☑ **Signs (of mucocele complication of acute cholecystitis):**
  - GB mass: may be difficult to feel due to rigidity.
  - Temperature is not as high as in case of empyema.

Investigations

- ☑ **Laboratory:**
  - CBC → PMN leucocytosis (not as high as in empyema).
  - LFTs → usually normal.
- ☑ **Radiological:**
  - U/S → stone (sensitivity 98%), distended GB.
  - Plain X-ray (AP and lateral views) → stones (sensitivity 10%) lie anterior to the spine.
  - HIDA scan: most accurate, least practical.

Pancreatic Pseudocyst

Clinical Picture

- ☑ History of acute pancreatitis or abodominal trauma, Du.
- ☑ Small pseudocyct → painless, detected by follow-up with U/S.
- ☑ Large one → upper abdominal which is fixed tender lying above the umbilicus & giving transmitted pulsations (which disappears in knee elbow position)swelling, discomfort,

Investigations

- ☑ **By radiology:**
  - Barium meal (lateral view): forward gastric displacement.
  - U/S and CT scan: are the most accurate.

Renal Cell Carcinoma

Clinical picture

- ☑ **More in males. 50 years.**
- ☑ **Hematureia (50%): painless, periodic, and profuse.**
- ☑ **Pain (40%).**
- ☑ **Mass (30%): hard irregular.**

} Triad (10%) → usually advanced disease.

- ☑ **Paramalignant syndrome e.g. HTN, hypercalcemia, polycythemia.**
- ☑ Cachetic syndrome.

Investigations

- ☑ **Laboratory:**
  - Urine analysis → hematuria.
  - CBC → anemia, polycythemia, ↑ESR.
- ☑ **Radiology:**
  - IVP: shows irregular spider leg appearance
  - U/S:
    - Radiology for metastasis: CXR, isotope bone scan.

DD of Swelling in the Lt. Hypochondrium

✸ Causes:

➢ Parietal swelling:

- ☑ **Skin:**
  - Abscess.
  - Haematomas.
  - Sebaceous cyst.
  - Haemangioma.
- ☑ **S.C tissue:**
  - Lipoma
  - Neurofibroma.
  - Neurofibrosarcoma.
- ☑ **Muscles layer: fibrosarcoma &incisional hernia.**

➢ Intraabdominal swelling

- ☑ **Visceral:**
  - Spleen:
    - Metabolic → Usually there is positive family history.
    - Bacterial Infections → There is fever, enlarged tender spleen and ↑ TLC
    - Tumors.
    - Portal HTN.
    - Blood disease →Usually there is a characteristic CBC.
    - Cyst.
    - Collagen disease.
  - Splenic flexure: carcinoma → Common in males and usually present by IO rather than a mass.
  - Lt. kidney:
    1. Polycystic kidney → There is positive family history and starts to manifest after 30 years old.
    2. Hypernephroma.
    3. Wilm's tumor → Usually in a child between 3-4 years old. Present by abdominal swelling in that does not cross the midline in 90% of cases.

4. Hydronephrosis.
5. Pyonephrosis.
6. Solitary cystic kidney.
   - Lt. suprasternal gland: malignant tumors.
   - Tail of the pancreas.

☑ **Retroperitoneal sarcoma.**

✸ Diagnosis

➢ The most common causes are:

1- Splenomegaly (commonest with portal hypertension).
2- Renal cell carcinoma.

Splenomegaly of portal HTN

Clinical Picture

☑ **C/P of the cause:** e.g. Bilharziasis or liver cirrhosis
☑ **C/P of portal HTN**

a. Opening of porto-systemic collaterals.
   1- Esophageal and gastric varices → hematemesis, melena and anemia.
   2- Caput medusa.
   3- Anorectal varices (hemorroids).
b. Congestion of the GIT → anorexia, dyspepsia and indigestion.
c. Ascites.
d. Splenomegaly: Lt. upper abdominal swelling, discomfort ± pain.

What are the characters of splenic swelling?

Investigations

☑ **Investigations for portal HTN:**
- **For etiology:** viral markers, liver biopsy.
- **For liver function:** LFTs → ↓ albumin, ↑ PT, ↑ AST, ↑ ALT.
- **For esophageal varices:** upper endoscopy.

☑ **Investigations for splenomegaly**
- **Laboratory:** CBC → anemia or pancytopenia (with hypersplenism).
- **Radiology:**
  - U/S.
  - ^{51}Cr-labelled RBCs isotope study → ↑ spleen/liver index.
- **Instrumental:** BM examination → hypercellularity.

Renal Cell carcinoma

See before.

DD of Swelling in the Rt. iliac Fossa.

✸ Causes:

➢ Parietal Swellings:

- ☑ **Skin**
  - Sebaceous cyst.
  - Haemangioma.
  - Abscess.
  - Haematomas.
- ☑ **S.C tissue:**
  - Lipoma.
  - Neurofibroma.
  - Neurofibrosarcoma.
- ☑ **Muscles layer:** fibrosarcoma.
- ☑ **Incisional and paralytic hernia.**

➢ Intraabdominal swellings:

- ☑ **GIT:**
  - Ileum: Chron's disease
  - Caecum: colonic carcinoma.
  - Ileocaecum: ileo-caecal TB, ileo-caecal actinomycosis.
  - Appendix: appendicular mass or abscess.
- ☑ **Tubo-ovarian:**
  - Ovarian cyst or tumor → May be bilateral and can be detected by PV and U/S.
  - Hydrosalpinx or pyosalpinx.
  - Tubal pregnancy → There is usually of induction therapy.
- ☑ **Uterus:** Fibroid.
- ☑ **Renal:**
  - Ptosed kidney →The ureter is tortous and there is normal rotation on IVP.
  - Ectopic kidney. The ureter is not tortous and there is abnormal rotation on IVP
- ☑ **Vascular:**
  - Rt. Iliac a. aneuroysm. Expansile pulsations, burit..... .
  - Rt. Iliac LNs:
    - Lymphadenitis: acute and chronic (non-specific and specific e.g TB lymphadenitis). It is near the iliac vessels.
    - Malignancy: lymphoma and metastatic carcinoma.
- ☑ **Muscular**
- ☑ **Retroperitoenal sarcoma or malignant undescended testis.**

✸ Diagnosis

➢ Most common causes are:

1- Appendicular mass or abscess.
2- Caecal carcinoma.

Appendicular mass or abscess

Clinical picture:

☑ **C/P of appendicitis.**

☞ C/O:

- Acute severe pain:
  - 1st ill-localized periumbilical dull aching pain.
  - Later, well-localized Rt. iliac fossa sharp pain.
- Nausea & vomiting.
- Constipation.

☞ O/E:

- Fever (not > 40◦C unless complicated) & tachycardia.
- Rigidity, Tenderness, Rebound Tenderness in the Rt. iliac fossa.
- Special signs: Rovsing's sign, Psoas sign & obturator sign.

☑ **C/P of appendicular mass (3-4 days later).**

- Abdominal examination → Rt. iliac fossa mass.
- PV → pelvic mass.

☑ **C/P of appendicular abscess (3-4 days later):**

As appendicular mass + very high temperature.

Investigations:

☑ **For appendicitis:**

- Laboratory:
  - CBC: leucocytosis
  - Urine analysis: to exclude UTI.
  - Pregnancy test: to exclude ectopic pregnancy.

} To exclude common genitourinary causes

- Radiology: U/S.
- Instrumental: laparoscopy.

☑ **For appendicular mass and abscess: U/S.**

Caecal carcinoma

Clinical picture:

☑ **More in females**

☑ **Usually vague presentation:**

- Asthenia, Anorexia.
- Recurrent Attacks of Rt. iliac fossa pain..

☑ **Rt. iliac fossa mass (common).**

☑ **Intestinal obstruction (rare, occurs if the lesion obstructs the ilieocaecal valve).**

Investigations:

☑ **Laboratory:**

- CBC → anemia (micro/macrocytic)
- CEA (prognostic rather than diagnostic).

☑ **Radiological:**

- Barium enema → filling defect or apple core appearance
- U/S or CT scan (for liver 2ries).

☑ **Instrumental: colonoscopy & biopsy:**

D.D of Swelling in the Lt. Iliac Fossa

Causes

Pariegrtal swelling:

☑ **Skin:**
- Abscess
- Sebaceous cyst.
- Haematomas.
- Haemangioma.

☑ **S.C tissue:**
- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma.

☑ **Muscle layer:** fibrosarcoma.

☑ **Hernia:** incisional & paralytic.

Intraabdominal swelling:

☑**Visceral:**

- Pelvic colon:
  - Bilharzial mass → Hard nodular mass and may be associated with portal HTN.
  - Pelvic carcinoma.
  - Diverticulitis → Occurs usually in old males and may cause massive bleeding per rectum.
  - Spastic colon.

☑**Tubo-ovarian:**
- Ovarian cyst or tumor → May be bilateral and can be detected by PV and U/S.
- Hydrosalpinx or pyosalpinx.
- Tubal pregnancy.
- Fibroid.

☑**Renal:**
- Ptosed kidney →The ureter is tortous and there is normal rotation on IVP.
- Ectopic kidney →the ureter is not tortous and there is abnormal rotation on IVP.

☑**Vascular:**
- Lt. iliac a. aneurysm → Expansile pulsations, burit.....
- Lt. iliac lymphadenopathy:
  - Lymphadenitis: acute & chronic (non-specific & specific e.g. TB lymphadenitis) near the iliac vessels.
  - Malignancy: lymphoma & metastatic carcinoma.

☑**Muscular:** ileo-psoas abscess.

☑**Retroperitoneal sarcoma, or malignant undescended testis.**

Diagnosis

The most common cause is:

Pelvic colon carcinoma:

Clinical picture: more common in males.

☑**Change of bowel habits:**
- Progressive constipation (commonest).
- Diarrhea.
- Constipation alternating with diarrhea.
- Spurious diarrhea.

DIFFERENTIAL DIAGNOSIS

☑ **Intestinal obstruction (common): acute, subacute or chronic, leading to:**
- Absolute constipation (early).
- Vomiting (late).
- Distention.

☑ **Bleeding per rectum:** common but rarely massive.
☑ **Mass in the Lt. iliac fossa (rare):** usually due to impacted stool.

Investigations:

☑**Laboratory:**
- CBC → anemia (micro/macrocytic)
- CEA (prognostic rather than diagnostic).

☑**Radiological:**
- Barium enema → filling defect or apple core appearance
- U/S or CT scan (for liver 2ries).

☑**Instrumental: sigmoidoscopy & biopsy:**

D.D of Swelling in the Epigastrium

Causes

➢ Parietal swelling:

☑ **Skin:**
- Abscess
- Sebaceous cyst.
- Haematomas.
- Haemangioma.

S.C tissue:
- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma

☑ **Muscle layer: fibrosarcoma.**
☑ **Hernia:**
- Incisional hernia.
- Fatty hernia of linea alba.
- Epigastric hernia.

➢ Intraabdominal swelling:

☑ **Visceral:**
- **Lt. lobe of the liver:**
  1. Amoebic abscess →Occurs usually in endemic areas and responds very well to metronidazole within 72 hours
  2. Hydatid **c**yst →usually occurs in endemic areas (e.g Algeria) and shows hydatid thrill in 70% of cases
  3. Malignant nodule (**c**ancer) → CT scan is accurate and level of alpha feto protein above 2000 ng/dl is diagnostic
  4. Liver **c**irrhosis → There may be history of the cause and manifestations of cirrhosis, e.g., bleeding tendency
- **Transverse colon:**
  1. **C**arcinoma →More in females and usually presents by a mass rather than I.O
  2. Bilharzial **c**olitis →Hard nodular mass and may be associated with portal HTN
  3. Diverticulitis → Occurs usually in old males and may cause massive bleeding per rectum

- **Greater omentum:**
  1. TB peritonitis → There may be ascites, pain or abdominal masses. It is best diagnosed by laparoscopy.
  2. Malignant nodule "Tumor" rare.
- **Stomach:**
  1. Carcinoma.
  2. Epigastric abscess.
  3. Gastric outlet obstruction →Characteristic projectile, non bilious, foul odor vomiting containing food from previous meals or days especially at the night.
- **Pancreas: pseudopancreatic cyst.**

☑ **Vascular:**
- **Aorta:** abdominal Aortic aneurysm (AAA) but 95% below lvel of renal arteries (i.e in the umblinical region)
- **Aortic L.Ns:**
  1. Lymphadenitis: acute & chronic (non-specific & specific e.g. TB lymphadenitis).
  2. Malignancy: lymphoma & metastatic carcinoma.

☑ **Retroperitoneal sarcoma**

✸ Diagnosis

➢ The most common causes are:

☑ **Gastric carcinoma.**
☑ **AAA.**
☑ **Pseudopancreatic cyst.**

Gastric carcinoma:

Clinical picture:

More in ♂ > 50 yrs. Presentation usually falls in 1 of these 5 groups:

☑**Insidious presentation:** with anemia, asthenia & anorexia.
☑**Dyspepsia.**
☑**Cachaxia**
☑**Obstruction:**
- Cancer at cardia → dysphagia.
- Cancer at pylorus → vomiting.

☑**Epigastric mass** (usually indicates advanced carcinoma).

Investigations:

☑ **Laboratory:**
- **CBC** → micro / macrocytic anemia.
- **CEA** (for prognosis rather than diagnosis).

☑ **Radiology:**
- CT (especially for LN deposits + pre-operative staging).

☑ **Instrumental: endoscopy & biopsy (early endoscopy is the key for good result):** may show Irregular filling defect, ulcer niche, Carmen minscus sign, linitis plastica

Abdominal aortic aneurysm:

Clinical picture:

☑ **Of the cause: e.g atherosclerosis**
☑ **Of the aneurysm:**
- ☞Asymptomatic in 75%.
- ☞Symptomatic: pain (commonest) vague abdominal pain in the flanks & back ache.

DIFFERENTIAL DIAGNOSIS

☑ **Of the complications:**

- **Rupture (triad of shock, acute abd.pain,pulsating epigastric mass**
- **Ischemia due to: thrombosis,empolism,associated atherosclerosis**
- **Pressure manifestations: nerve: sensory or motor loss.**
  Bone: erosion of the vertebra
  Vein: obstruction & thrombosis

Investigations: by radiological modalities:

☑ **U/S** (for screening).
☑ **Spiral CT scan**: accurate investigation to determine the diam.& true extension of aneurysm.
☑ **MRI** (alternative to CT scan, more costy).

Pseudo pancreatic cyst:

► **See before**

D.D of a Swelling in the Umbilical Region

✸ Causes

➢ Parietal swelling:

☑**Skin:**

- Abscess
- Sebaceous cyst.
- Haematomas.
- Haemangioma.

☑**S.C tissue:**

- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma.

☑**Muscle layer: fibrosarcoma.**
☑**Umbilical hernia & para-umbilical hernia:**

➢ Intraabdominal swelling:

☑**Visceral swellings:**

- Stomach:
  1. Gastric carcinoma.
  2. Epigastric abscess.
  3. Gastric outlet obstruction → Characteristic projectile, non bilious, foul odor vomiting containing food from previous meals or days especially at the night.
- Transverse colon:
  1. Bilharzial colitis→ Hard nodular mass and may be associated with portal HTN
  2. Diverticulitis →Occurs usually in old males and may cause massive bleeding per rectum
  3. Carcinoma (rare) → More in females and usually presents by a mass rather than I.O
- Greater omentum:
  1. TB peritonitis → There may be ascites, pain or abdominal masses. It is best diagnosed by laparoscopy
  2. Malignant nodule (rare)
- Mesentry: mesenteric cyst →Shows Tillaux triad.

☑**Vascular:**

- Aorta: abdominal Aortic aneurysm (AAA).
- LNs (Aortic & mesenteric):
  1) Lymphadenitis: acute & chronic (non-specific & specific e.g. TB lymphadenitis).
  2) Malignancy: lymphoma & metastatic carcinoma.

☑**Retroperitoneal sarcoma.**

✸ Diagnosis

➢ Most common causes are:

☑**Para-umbilical hernia.**
☑**Gastric carcinoma.**
☑**AAA.**

Para-umbilical hernia:

Clinical picture:

More in middle-aged females.

☑**C/P of predisposing factors**, e.g. multi-parity, obesity, chronic cough…

- **Swelling ccc by:**
  - Painless unless complicated.
  - Mild dragging pain may be present in huge hernia.
  - It is common for para-umbilical hernia to be irreducible or partially reducible.
  - Gives expansile impulse on cough, unless strangulated.
  - Site: usually above, may be below but never lateral to the umbilicus.

☑**C/P of complications:** e.g. strangulation → painful, irreducible, no impulse on cough, tender + C/P of intestinal obstruction.

Investigations:

- **it is a clinical diagnosis**

Gastric carcinoma: see before

Abdominal Aortic aneurysm:

See before

DD of Swelling from the Anus

➢ Prolapsed swellings:

1. Piles.
2. Rectal polyps
3. Rectal prolapse
4. Prolapsed intussception

➢ External swellings:

1. External piles
2. Abscess
3. Post-anal dermoid cyst.
4. Carcinoma of the anus
5. Condylomas

D.D of a Swelling in the Suprapubic Region

✸ Causes

➢ Parietal swelling:

☑ **Skin:**

- Abscess
- Sebaceous cyst.
- Hematomas.
- Hemangioma.

☑ **S.C tissue:**

- Lipoma.
- Neurofibroma.
- Neurofibrosarcoma.

☑ **Muscle layer: fibrosarcoma.**

➢ Intraabdominal swelling:

☑ **Visceral:**

- Uterus:
  - Fibroid.
  - Pregnancy: normal, ectopic & vesicular mole.
  - Malignancy: endometrial carcinoma, choriocarcinoma & uterine sarcoma.
  - Pyometra & hematometra.
  - Adenomyosis.
- Tubo-ovarian:
  - Ovarian cyst or tumor → May be bilateral and can be detected by PV and U/S.
  - Hydrosalpinx or pyosalpinx.
  - Tubal pregnancy → There may be history of induction therapy.
- Urinary system:
  - Full bladder: urinary retention.
  - Malignancy → There may be history of bilharziasis, haematuria..... . cystoscopy is diagnostic.
  - Ectopic, ptosed or transplanted kidney.
- Sigmoid colon:
  - Bilharzial mass → Hard nodular mass and may be associated with portal HTN
  - Pelvic carcinoma → More in males and presents usually by I.O rather than a mass.
  - Diverticulitis → Occurs usually in old males and may cause massive bleeding per rectum
  - Spastic colon.

☑ **Retroperitoneal sarcoma**

➢ Swellings specific to different abdominal lesions:

			Rt. hypo-chondrium	Lt. hypo-chondrium	Rt. Iliac fossa	Lt. iliac fossa	Epigastrium	Umbilical region	Supra-pubic region
Visceral	GIT	Gastro-enteric	Hepatic flexure	Splenic flexure	-Ileum. -Caecum. -Appendix.	Pelvic colon	-Transverse colon & greater omentum. -Stomach.	-Transverse colon & greater omentum. -Stomach. -mesentry	Sigmoid colon.
		Liver, GB, spleen & pancreas.	-Liver. -GB. -Pancreas.	-Spleen. -Pancreas.			-Liver (Lt. lobe). -Pancreas.		
	Uro-genital	Urinary	-Kidney. -Suprarenal gland		Kidney.				
		Genital			Tubo-ovarian				-Uterus & adnexae. -UB
Vascular					-Iliac artery. -Iliac LNs.		- Abdominal Aorta. - Aortic LNs.		
Muscul o-skeletal	Muscular				Ilio-psoas abscess				
	Skeletal								

Bleeding in the GIT

Upper gastrointestinal hemorrhage (hematemesis and melena)

Definitions:

➔ Upper GI hemorrhage is usually due to lesions above the ligament of Treitz (end of duodenum).

➔ It manifests by hematemesis and/or melena.

- **Hematemesis**: vomiting of blood which may be of a coffee ground material if it is of small amount or bright red blood if it is of large volume.
- **Melena**: passage of black tarry stools. In most cases it is caused by bleeding from upper GIT. Rarely however, melena arises below the ligament of treitz, e.g., from lesions of the small bowel as neoplasms, bleeding Meckle's diverticulum, intussusception, MVO and bleeding typhoid ulcers.
- Occassionally upper GI bleeding is so massive and the transit period is so fast to the extent that it manifests by **bleeding per rectum**.
- Minor trickling of blood from any part of the gut does neither manifests in vomitus nor in change of color of stools. This is called **occult GI bleeding**.

Causes

	Vascular	Inflammatory	Traumatic	Neoplastic
Esophageal causes	Esophageal varices	Reflux esophagitis	Mallory weis syndrome	Esophageal carcinoma
Gastric causes	Hereditary hemorrhagic telangectasia	Multiple gastric erosions. Acute gastritis. Gastric ulcer.		Gastric carcinoma. Leiomyoma. Gastric polyp.
Duodenal causes	Aorto-duodenal fistula.	Pudendal ulcer		Peri-ampullary carcinoma.

General causes:

☑ **Bleeding disorders, e.g.** hemophylia, thrombocytopenia.

☑ **Drugs: anticoagulant therapy.**

- The commonest causes of upper GI hemorrhage are in the following order:
  1. **Esophageal varices.**
  2. **Acute gastric erosions usually caused by ingestion of NSAIDs.**
  3. **Acute hemorrhagic gastritis.**
  4. **Chronic duodenal ulcer.**

➔ Management of upper GI bleeding:

- In this emergency situation you should not wait for a diagnosis. Life saving resuscitative measures should be initiated immediately and are then followed by diagnosis and definitive treatment.
  1. Estimation of severity of bleeding and resuscitation.
  2. Localization of the site and cause of bleeding.
  3. Treatment of specific lesions.

➔Estimation of severity of bleeding and resuscitation:

- Admit to hospital. severe bleeding cases require ICU admission. Repeated clinical and hematocrite assessment.
- Insert two peripheral venous lines and withdraw blood for cross-matching and blood tests.
- Insert a Foley catheter. Urine output is the best monitor of tissue perfusion.
- A central venpus line is neede for monitoring in severe cases.
- IV sodium containing fluids is started until blood is available e.g., Ringer's lactate.
- A nasogastric tube is inserted for all cases.
- Correct coagulopathy by FFP and by giving missing factors.
- A major cause of morbidity and mortality is aspiration of blood. To prevent this complication in patients with altered mental status, endotracheal tube intubation should be considered.

➔Localization of the site and cause of bleeding:

History:

- Previous attacks and their management.
- Hepatitis and bilharziasis.
- Medications, particularly NSAIDs.
- Peptic ulcer symptoms.
- Bleeding tendency.

Examination:

- Stigmata of cirrhosis; spidre naevi, jaundice, gynecomastia, palmar erythema..... .
- Surgical scars.
- Tenderness.

Laboratory tests:

- Hemoglobin percent and hematocrite value will show evidence of hemodilution after three hours.
- Liver functions tests will be disturbed in patients with cirrhosis and esophageal varices.
- Blood urea and creatinine.
- Exclude causes of generalized bleeding tendency by the coagulation tests.

Fiberoptic Endoscopy:

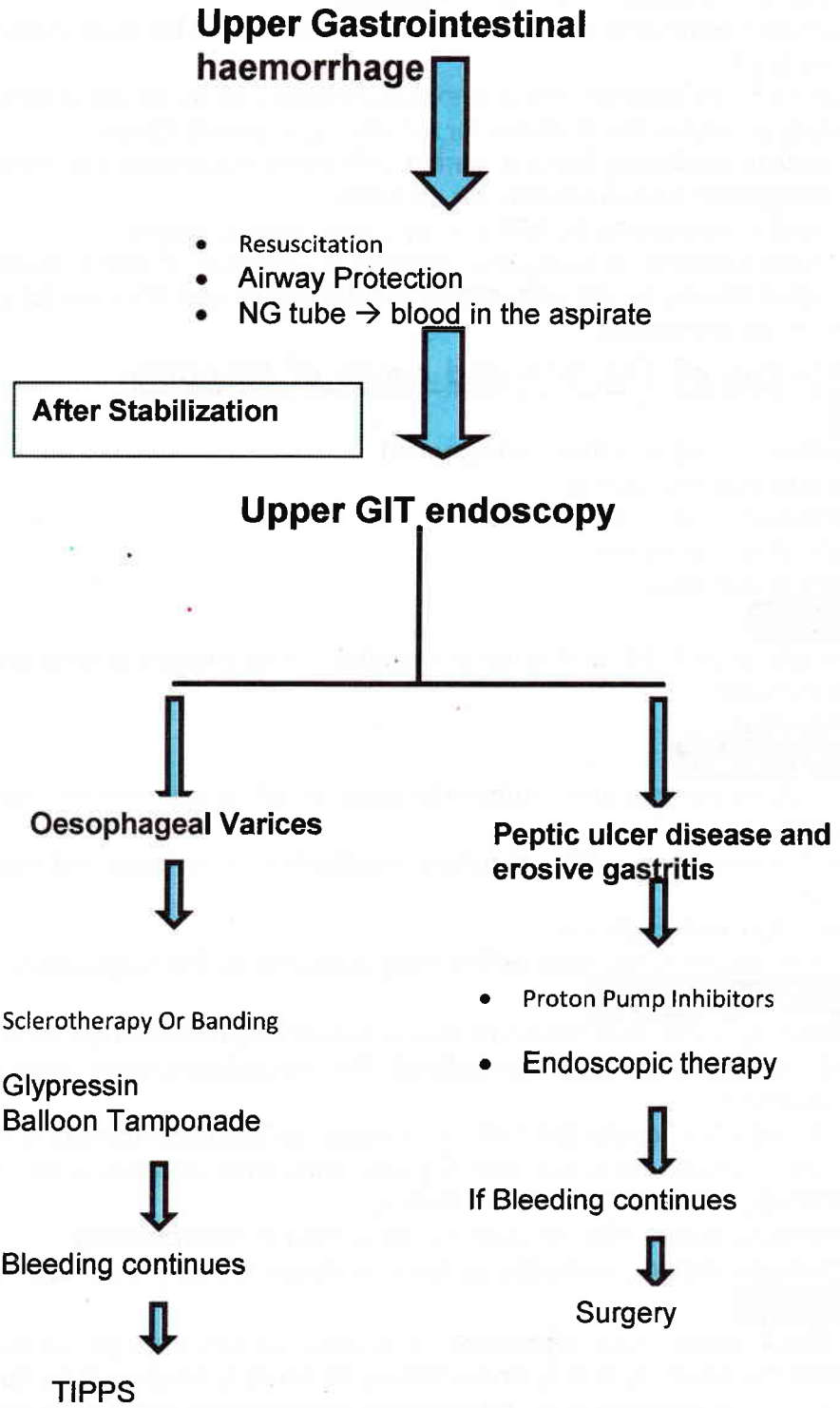
- Endoscopy is the most important test. It should be performed as early as possible once the patient has been resuscitated. The procedure is done under mild sedative as diazepam.
- In the majority of cases (90-95%) endoscopy will establish the cause of bleeding and it may reveal the actual bleeding spot. Moreover, in cases of double lesions, endoscopy will tell which one is bleeding.
  - Endoscopy can also be used therapeutically to stop bleeding.
  - Barium radiography is loosing favour because it is less accurate than endoscopy.

Angiography:

- In difficult cases where radiography or endoscopy fails to diagnose the lesion that causes the bleeding, it may be necessary to resort to celiac angiography to reveal the source of bleeding, e.g., angiomatous malformation of the stomach.
- Angiography needs to be performed during active bleeding

➔ Treatment of specific lesions

Refer to text



Bleeding per rectum

➔ Haematochezia is fresh bleeding per rectum.

✸ Causes

➢ Local causes:

	Vascular	Inflammatory	Traumatic	Neoplastic
Anorectal causes	Hemorrhoids.		Anal fissure	• Rectal carcinoma. • Anal carcinoma.
Intestinal causes	• Mesenteric infarction • Intussusception • Angiodysplasia.	• Amebic dysentery. • Crohn's disease. • Ulcerative colitis. • Bilharzial colitis. • Diverticular disease. • Meckle's diverticulum.		• Colonic carcinoma. • Colonic & small intestinal polypi (e.g. FPC)
Esophageal & gastro-duodenal causes	Esophageal varices	PU		

➢ General causes:

- ☑ **Bleeding disorders, e.g.** hemophylia, thrombocytopenia.
- ☑ **Drugs:** anticoagulant therapy.

➔ **Hemorrhoidal bleeding is the commonest cause.**

➔ **Massive bleeding per rectum in adults:**

1. Diverticular disease.
2. UC.
3. Ischemic colitis.
4. Angiodysplasia.
5. Massive bleeding from upper GIT.

➔ **Massive bleeding per rectum in children**

- Meckel's diverticulum.

➔ **Facts about bleeding per rectum**

1. Spontanous remission rate is 80%.Bleeding has usually ceased by the time the patient presents to hospital.
2. No source of bleeding can be identified in 12% of cases.
3. Bleeding is recurrent in 25% of cases.
4. Lower GIT bleeding is more difficult to diagnose than upper GIT bleeding.

Management of bleeding per rectum

➔ **We aim at:**

1. Estimation of severity of bleeding and resuscitation.
2. Localization of the site of bleeding and cause of bleeding.
3. Treatment of specific lesions.

DIFFERENTIAL DIAGNOSIS

➔ **Estimation of severity of bleeding and resuscitation (in cases of massive bleeding):**

- Admit to hospital. severe bleeding cases require ICU admission.
- Repeated clinical and hematocrite assessment.
- Insert two peripheral venous lines and withdraw blood for cross-matching and blood tests.
- Insert a Foley catheter. Urine output is the best monitor of tissue perfusion.
- A central venpus line is neede for monitoring in severe cases.
- Ryle tube.
- IV sodium containing fluids is started until blood is available e.g., Ringer's lactate.
- Correct coagulopathy by FFP and by giving missing factors.

➔ **Localization of the site and cause of bleeding:**

History:

- Previous attacks and their management.
- Bilharziasis.
- Medications..
- Bleeding tendency.
- Same cases in the family (e.g., familial polyposis coli).

  Haemorrhoidal bleeding is characterized by :
  - Fresh bright red.
  - Jet or drops separate from stools.
  - Occurs with strainig usually by the end of defecation.
- In ulcerative colitis there is a long history of diarrhoea with rectal discharge of mucous or blood.
- Patients with ischemic colitis are usually elderly and complain of left sided abdominal pain and bright red rectal bleeding.
- Recent change of bowel habits, esp. in carcinoma of colon.

Examination:

- **Abdominal examination may reveal the presence of a mass e.g., cancer sigmoid**
- **DRE may reveal:**
  - Carcinoma of rectum.
  - Polyps in cases of FPC or bilharziasis..

N.B: clinical examination is usually irrelevant in cases of diverticular disease and vascular malformations.

Investigations

➔ **Check that the patient doesn't have upper GIT bleeding by passing a nasogastric tube or by upper endoscopy.**

1. **Laboratory tests:**
   - Hemoglobin percent and hematocrite value will show evidence of hemodilution after three hours.
   - Stools examination may reveal bilharizial ova or trophozoites of amoebiasis.
   - Blood urea and creatinine.
   - Exclude causes of generalized bleeding tendency by the coagulation tests.
2. **Proctoscopy** will reveal internal haemorrhoids.
3. **Sigmoidoscopy**→The rigid sigmoidoscope can reach up to 30cm from the anal verge while the fibreoptic sigmoidoscope can reach up to 70cm and so it can diagnose most of the lesions of the rectum,sigmoid colon and descending colon.

4. Colonoscopy:

- Can visualize the whole colon but it needs proper preparation of the colon by repeated enemas before the procedure.
- In patients with massive colonic bleeding,the blood will obscure the field and so it is better to postpone the procedure in these situations.Colonoscopy is the investigation of choice for chronic blood loss.

5. Isotope scans:

- The patient's own RBCs are tagged with 99mTc and then injected intravenously.
- Abdominal scanning by a gamma camera can identify the site of bleeding.

6. Angiography:

- This invasive investigation is performed when colonoscopy cannot be performed because of massive bleeding or when colonscopy cannot pinpoint the source of bleeding e.g in angiomatous malformations of the colon.
- Selective catheterization of the superior or inferior mesentric artery will usually succeed in localizing the source of bleeding ,an attempt can be made to stop the bleeding by injection of vasoconstrictors or gel foam through the angiography catheter.
- Angiography is not an easy investigation and it is not available except in special centers.

7. Contrast radiology:

- Double contrast barium enema is only justified as an elective investigation in case of chronic blood loss.

8. Laparotomy:

- If all the previous investigations are not available ,or failed to pinpoint the site of bleeding ,it may be inevitable to proceed to laparotomy in patients with massive bleeding.
- Colonoscopy can be performed during exploration.

Treatment

A. Minor bleeding

- Is treated on **elective** basis.
- There is enough time for meticulous examinmation and investigations to reach a diagnosis before starting treatment.

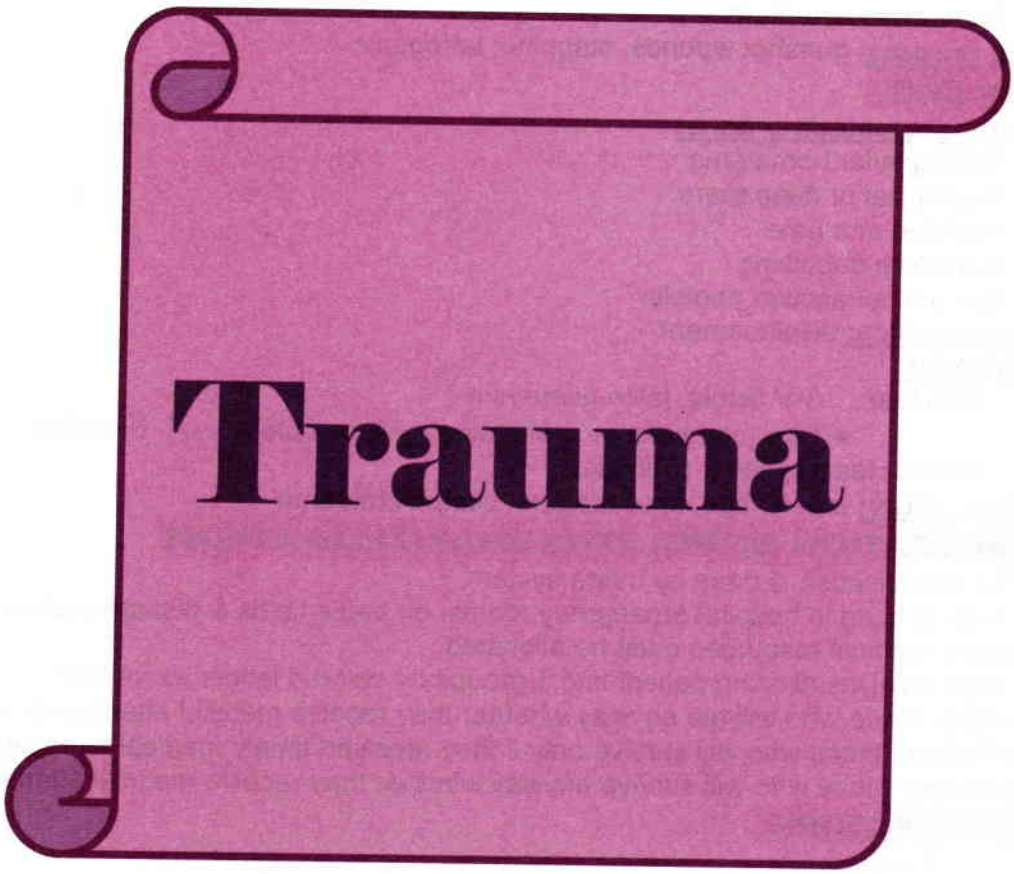
B. Massive bleeding

- Treated on an **emergency** basis.
  1. For massive bleeding start the usual resuscitative measures.
  2. Fortunately in the majority of cases,bleeding will stop spontaneously and the surgeon has the time to diagnose and treat the patient electively.
  3. If massive bleeding continues,proceed with colonoscopy or angiography according to the available experience and facilities.If angiography succeeds in localizing the bleeding point ,an attempt can be made to stop bleebing by injection of vasopressin 0.2unit/minute or by embolization with thrombin or gel foam.
     - If colonoscopy visualizes an area of vascular malformation(angiodysplasia),bleeding can be stopped by diathermy or laser.
  4. If all the previous measures fail to stop bleeding or if the bleeding is massive (blood loss more then 2.5 litres over 48 hours),surgical intervention will have a lower mortality than continued conservative management.
  5. If the source of bleeding could be localized preoperatively,segmental resection of the colon would be performed.
  6. If there are absolutely no clues as to the source of bleeding,total colectomy may be indicated.

DIFFERENTIAL DIAGNOSIS

➢ Bleeding from different orifices:

		Vascular	Inflammatory	Traumatic	Neoplastic	Others
Hematemesis	**Esophageal causes**	Esophageal varices	Reflux esophagitis	Mallory weis syndrome	Esophageal carcinoma	
	Gastric causes	Hereditary hemorrhagic telangectasia	• Multiple gastric erosions. • Acute gastritis. • Gastric ulcer.		• Gastric carcinoma. • Leiomyoma. • Gastric polyp.	
	Duodenal causes	Aorto-duodenal fistula.	Pudendal ulcer		Peri-ampullary carcinoma.	
Bleeding per rectum	**Anorectal causes**	Hemorrhoids.		Anal fissure	• Rectal carcinoma. • Anal carcinoma.	
	Intestinal causes	• Mesenteric infarction • Intussusception. • Angiodysplasia.	• Amebic dysentery. • Crohn's disease. • Ulcerative colitis. • Bilharzial colitis. • Diverticular disease. • Meckle's diverticulum.		• Colonic carcinoma. • Colonic & small intestinal polypi (e.g. FPC)	
	Esophageal & gastro-duodenal causes	Esophageal varices	PU			
Hematuria	**Renal causes**	Renal infarction	Acute glomerulonephritis. TB.	• Renal stones. • Renal trauma.	• Hypernephroma. • Wilm's tumor. • Transitional cell carcinoma.	Polycystic kidney.
	Ureteric causes			• Ureteric stones. • Ureteric trauma.	Transitional cell carcinoma.	
	Bladder causes		Cystitis: Non-specific, specific (TB, bilharzial)	UB stones.	• Transitional cell carcinoma. • Squamous cell carcinoma.	
	Prostatic		TB prostatitis		Prostatic cancer	SPE
	Urethral		Urethritis	• Urethral stones. • Urethral injury.	Urethral neoplasm.	


Trauma

Polytraumatized Patients

INCIDENCE

- Represent the commonest cause of death among people aged 1-34Yr

ETIOLOGY

I. Closed trauma:

- Direct → blunt e.g. motor car accident fall from height.
- Indirect → fracture ribs
- Spontaneous rupture

II. Open trauma: gunshot wounds, stapping, iatrogenic

PATHOLOGY

1- **Parenchymatous organs:**
- Subcapsular hematoma
- Superficial or deep tears
- Avulsion of a pole
- Complete debulbing
- Injury of a vascular pedicle

2- **Orthopedics:** displacement

3- **Vascular:**
- With tear: A-V fistula, false aneurysm
  - Tear: complete → ↓ bleeding
  - Incomplete → ↑ bleeding
- Without tear: spasm, contusion

4- **Head injury:** e.g. IC hge, skull fracture, scalp hematoma

CLASSIFICATION OF POLYTRAUMATIZED PATIENT

➔ The classification is done by triage system.

➔ Triage is used in hospital emergency rooms, on battle fields & disasters when limited medical resources must be allocated.

➔ Triage involves dividing patient into 3 groups by colored labels as follows:

1-Red: those who will die anyway whether they receive medical attention or not.

2-Yellow: those who will survive only if they received timely medical attention.

3-Green: those who will survive anyway whether they receive medical attention or not.

CLINICAL PICTURE

A. Of head injuries:

1. **Stage of concussion:** immediately after trauma patient falls flaccid & loses his consciousness
2. **Stage of lucid interval:** period of recovery from coma of concussion foll. By coma of compression
3. **Stage of compression:** s/s of ↑ ICT, localizing symptoms e.g. contralateral hemiplegia & ipsilateral constriction of the pupil.
4. **Terminal stage:** decerbrate rigidity

B. Of chest injuries: (e.g pneumothorax, hemothorax, flial chest)
- **Symptoms:** history of trauma, acute chest pain, dyspnea, cough, cyanosis.
- **Signs:**
  - ***General:*** signs of shock, engorged neck veins, cyanosis, respiratory distress
  - ***Local:***

    Inspection: ecchymosis & brusius, ↓ chest movement on the affected side or flial segment moves paradoxically with respiration (in flial chest)

    Palpation: shift of the trachea to the opposite site, ↓ TVF

Percussion: tympanic resonance on the affected side (or dullness in hemothorax)

Auscultation: ↓ air entry

C. **Of abdominal injuries**:(e.g. liver-spleen-renal)

➔ **History** of trauma to the abdomen followed by abdominal pain.

➔ **General:** shock → rapid weak pulse, hypotension, subnormal temp., cold extremities, palor, oliguria.

➔ **Local:**

- Inspection: ecchymosis & bruises in the injuried area, rigidity
- Palpation: G, T, RT in the injuried area
- Percussion: shifting dullness
- Auscultation : dec. intestinal sounds
- DRE: fullness in the rectovesical pouch in males, or in the Douglas pouch in females

➔ **Special signs:**

- ***Kehrr's sign:*** referred pain to the Lt. shoulder due to diaphragmatic Irritation
- ***Cullen sign:*** bluish discoloration around the umbilicus.

MANAGEMENT OF POLYTRAUMATIZED PATIENT

➔ Successful management polytraumatized patients require the integration of pre-hospital, in-hospitals & rehabilitation which are included in advanced trauma life support system (ALTS) which is safe & reliable approach for initial assessment & treatment of trauma as follow:

❖ *Pre-hospital management*

1. Ensure Patient Airway + Support Of Mandible Forwards.
2. Ensure adequate ventilation
3. Control any apparent bleeding by tourniquet or compression.
4. Cover any wound with sterile dressing
5. Avoid flexion of the spine to avoid dislocation in unstable spine injuries.
6. Inform the hospital to activate the trauma team prior to arrival of the accident

❖ *At hospital*

I. Primary survey

ABCDE

A. **Airway:**

- Place the patient on his side and lower the head slightly.
- Prevent backwards failing of the tongue by oropharyngeal airway.
- Suck any secretion or blood in the mouth with oxygenation.
- In comatosed patient → endo-tracheal tube and mechanical ventilation.

B. **Breathing:**

- Take care from hypoventilation or hypoxia evidenced by agitation or level of consciousness.
- Easily detection and correction of pneumothorax ,cardiac tamponade, hemothorax ,bronco –pleural fistula or lung laceration or surgical emphysema.

C. **Circulation:**

- Control bleeding by local compression or tourniquet.
- Treatment of shock either hypovolemic, cardiac or neurogenic.

D. **Disability:**

- Any fracture should be splinted to relive pain and avoid soft tissue injury until fixation is done

E. **Exposure:**
- Of the patient to detect any soft issue, vascular orthopedic injury.
- This phase aims at resuscitation & monitoring of poly-traumatized patient.

II. Secondary Survey

This phase includes:

1. **Head to toe examination of undressed & stable patient**
   - **Head examination:**
     - Injuries - Eye (pupil → size and reaction).
     - Mouth - Ear and nose
   - **Neck: neck collar for fixation:**
     - Absent pain or neurological signs does not exclude injury.
   - **Chest:** Penumothorax , hemothorax, cardiac tamponade.
   - **Abdomen:**
     - Indication of peritoneal lavage:
       - o Unconscious patient and hypotension of unknown etiology.
       - o Injury below and above diaphragm and evidence of abdominal injury.
   - **P/R:**
     - Blood in lumen - Prostate
     - Pelvic floor - Sphincter tone
   - **Neurological:** Glasgow coma scale
   - **Limbs:** for fracture and neurovascular bundle.
2. **History of any (AMPLE H/O):**
   - Allergies - Medications
   - Past medical history - Last meal
   - Event of injury
3. **Urgent investigations after basic life support:**
   - **Laboratory:**
     - HB%,glucose level, Kidney functions,PO_2,PCO_2,NA^+,K^+.
   - **Radiological:**
     - Plain X-ray: chest and skeletal or visceral injuries.
     - CT and MRI: chest, abdominal or head traumas.
     - U/S: for abdominal injuries.
   - **Instrumental:**
     - Abdominocentesis or thoracocentesis
     - GIT or urinary endoscopies

III. Definitive treatment

➔ During 2ry survey after stabilization of the patient, we can detect definitive injury by its specific clinical picture & specific investigations & deal with the patient according to the type of injury & priorities.

1. **Head injury:**
   - IC hge → control bleeding by underrunning suture, cauterization, ligature or facial graft
   - Scalp hematomas → apply cold followed by hot fomentation + prophylactic Abs
     If large → evacuation.
   - Skull fracture → conservative treatment after exclusion of IChgh, unless there is indication for surgery.
2. **Chest injury:**
   - In pneumothorax & hemothorax: insertion of I.C tube under water seal in the 5th space midaxillary line
   - If flial chest: 1st emergency strapping & emergency tracheostomy, then skeletal traction, or open reduction & internal fixation, or PEEP.

3. **Abdominal injury:**
   - Immediate laparotomy then control bleeding.
   - If liver injury → by pringle's maneuver
   - If splenic injury → splenectomy
   - If renal injury → suturing if small tear, partial or total nephrectomy if debulging injury

IV. Rehabilitation

- Requires coordination of the patient, medical staff & social services.

Neck injuries

INTRODUCTION

- The neck is a compact structure formed of a compressed multiorgan systems (airway, vascular, neurological, GIT)

INCIDENCE

- Neck trauma accounts for 5-10% of the serious traumatic injuries
- More common in young adults & adolescents males.

ETIOLOGY

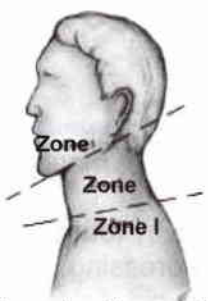
1. **Open trauma(penetrating): the commonest**
   - Gunshot, stab wound, iatrogenic (e.g. during esophagescopy)
2. **Closed trauma (blunt)**
   - e.g. car accident, strangulation or cervical spine disruption

PATHOPHYSIOLOGY

1. **Musculoskeletal injuries**: vertebral bodies, cervical Ms, tendons ligaments, clavicle, 1st& 2nd ribs & hyoid bone
2. **Neurological injuries:** spinal cord, phrenic N., Brachial plexus, RLN., cranial Ns (XI,X, XI, XII)
3. **Vascular injuries:** carotid(common , ext., int.), innominate & jugular veins
4. **Visceral structures:** thoracic duct, esopgagus, pharynx, larynx, trachea, thyroid
5. **Ass. Structures**: lung, Ht & great Vs

CLASSIFICATION

→ The ant. Neck is divided into 3 zones:



→ **Zone I:**
   - Extends from the sterna notch to the cricoids cartilage. Injuries here carry the highest mortality because of the risk of great Vs (e.g subclavian & common carotid) & intrathoracic injury.

→ **Zone II:**
   - Extends from the cricoid cartilage to the angle of the mandible.

→ **Zone III:**
   - Is that part of the neck above the angle of the mandible.

CLINICAL PICTURE

→ **History** of trauma (ask about mechanism of injury).

→ **Symptoms:** pain at the site of trauma.

→ **Signs:**
   - ***General:*** - Shock :
     1- Hypovolemic shock: rapid weak pulse, hypotension, subnormal temp., cold extremities, Palor, oliguria.

2- Neurogenic shock
- Associated Injuries e.g. chest & Heart injuries, or associated fracture.

- ***Local:***
  - CVS manifestations: bleeding
  - Airway: hemoptysis, dyspnea, hoarsness of voice, dysphonia
  - GIT: dysphagia, hematemsis
  - CNS: parathesia, hemiparesis/paralysis
- Signs of:
  1- Arterial injury: hard signs/ soft signs
  presence of pulse doesn't exclude arterial injury
  2- Respiratory: stridor, crepitus(sub.cutanous emphysema), tenderness of the trahea
  3- Neurological deficit:
  - Spinal cord injury: e.g. quadreplagia, hemiplagia, priapism, urinary retention,
  - Brachial plexsus injury(C5-C7 roots): sensory & motor lossin the upper arm
  - Nerve injury: e.g. phrenic N. injury → paralysis of diaphragm
  Cranial N. injury (V, IX, X, XI, XII), Horner syndrome
  4- Visceral injury: Ht: cardiac tamponade
  Chest: hemothorax

COMPLICATIONS

1. Tracheal/laryngeal edema or stenosis
2. Vocal cord paralysis
3. Aspiration & pulmonary complications
4. False aneurysm, A-V fistula
5. TES fistula
6. Air embolism
7. Wound infection

DD

- Dissecting aortic aneurysm
- Spinal cord infections
- Acute disc prolapse

MANAGEMENT

❖ *Pre-hospital management*

1. Ensure patient airway + support of mandible forwards.
2. Ensure adequate ventilation
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4. Cover any wound with sterile dressing
5. Avoid flexion of the spine to avoid dislocation in unstable spine injuries.
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❖ *At hospital*

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   - **Abdomen:**
   - **Neurological:** Glasgow coma scale
   - **Limbs:** for fracture and neurovascular bundle.
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   - Past medical history
   - Last meal
   - Event of injury
3. **Urgent investigations after basic life support:**
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   - **Radiological:**
     - Plain X-ray: chest , spine and skeletal or visceral injuries.
     - CT and MRI: chest, abdominal or head traumas.
     - Conventional angiography
     - Colored Doppler: Ar. Injury
     - Gastrographin study
   - **Instrumental:**
     - Endoscopic studies : laryngeoscopy, bronchoscopy, esophogoscpy
   - **Urgent surgical exploration of penetrating wound is indicated in the following:**
     1. Control blood loss, expanding hematoma, shock
     2. Airway obstruction
     3. Neurological deficit
     4. Hemoptysis or hematmsis

III. Definitive treatment

→ During 2ry survey after stabilization of the patient, we can detect definitive injury by its specific clinical pic. & specific investigations & deal with the patient according to the type of injury & priorities.

PROGNOSIS

- **Zone I:** the worst prognosis with inc. morbidity & mortality
- **Zone II:** the most common & have the best prognosis

Stab Wound in the Femoral Triangle

INTRODUCTION

→ **Anatomy of the femoral triangle:**

- It's a subfascial space occupying the front of the upper one third of the thigh just below the inguinal ligament.
- **Boundries:**
  Lat: medial border of Sartorius
  Med: medial border of the adductor longus
  Base: ing. Ligament
  Apex: meeting of Sartorius & adductor longus
- **Floor:** from medial to lateral :adductor longus, pectinus, psoas major, iliacus Ms
- **Roof:** skin, superficial fascia, deep fascia & in between great saphenous vein & ilioinguinal N.
- **Contents:**
  - Femoral ar. & its superfacial branch
  - Femoral vein
  - Femoral branch of genitofemoral N
  - Femoral N. outsde the femoral sheath
  - Inguinal LNs

  } Inside femoral sheath

INCIDENCE

- Represent 3% of the major injuries in the causality
- More in males esp. at the age of 1-44 yrs

ETIOLOGY

a- Open trauma(penetrating): the commonest: gunshot, stab wound, iatrogenic
b- Closed trauma(blunt): e.g. car accident, crush injury

PATHOPHYSIOLOGY

- **Musculoskeletal:** Ms(as above), tendons, femur
- **Neurological injuries:** femoral N.& it's branch saphenous N.
- **Vascular injuries:** femoral A. & its superficial Branches & femoral vein, great saphenous vein
- **Associated structures**

CLINICAL PICTURE

→ History of trauma (ask about mechanism of injury).
→ Symptoms: pain at the site of trauma.
→ Signs:

- *General:* - Shock :
  1- Hypovolemic shock: rapid weak pulse, hypotension, subnormal temp. cold extremities, palor, oliguria.
  2- Neurogenic shock
  - Associated abdominal injuries & fractures.
- *Local:*
  - Neurological: parathesia esp. in the anteromedial part of the thigh or along saphenous N. distribution
  - Vascular: bleeding, pulsating swelling, hematoma, acute ischemia (6ps) crush injury or compartmental syndrome
  - Musculoskeletal: inability to move the limb

- **Signs of:**
  - Arterial: hard signs/soft signs
  - Venous: DVT: painful swollen limb
  - Neurological: week hip flexion, week knee extension
    Sensory deficit in the medial side of the leg

COMPLICATIONS

1- False aneurysm, A-V fistula
2- Wound infection
3- Chronic ischemia & gangrene
4- Compartmental syndrome
5- Air embolism

DD

1. Femoral A. aneurysm
2. Swelling in the femoral triangle (see before)

MANAGEMENT AS POLYTRAUMATIZED PATIENT

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Urosurgery

Hematuria

DEFINITION

- Presence of blood in urine (always abnormal whatever its type)

TYPES

- Frank or microscopic.
- Painful or painless. Painless haematuria without other symptoms (silent) must be considered as a symptom of a tumor until proved otherwise.
- In relation to urine stream:
  - Total haematuria: passage of blood all over the stream. It indicates that the blood comes from the kidney or massive vesical bleeding. Haematuria from the kidney is associated with cylindrical clots. Haematuria from the bladder is associated with discoid clots. Stones, BPH and tuimors are common causes.
  - Terminal haematuria: passage of blood at the end of micturition. It indicates pathology in the trigone, bladder neck, posterior urethra and sometimes BPH. Bilharziasis is a common cause.
  - Initial haematuria. Passage of blood at the beginning of the act. It indicates a urethral origin.

CAUSES

a- **General causes:**

1. Bleeding tendency: e.g. Pupura & hemophilia.
2. Hypertension.
3. Drugs: anticoagulants.

b- **Local causes**

	Vascular	Infection	Trauma	Neoplasms	Others
Kidney	Renal infraction	- Pyelonephritis - TB	- Stone - Rupture kidney	- Wilm's - RCC - TCC & SCC of the renal pelvis	Polycystic kidney
Ureter		TB	Stone	TCC of ureter	
UB		- Bilharziasis - TB - Non specific cystitis	- Stone - Rupture bladder	- TCC - SCC - Adenocarcinoma	
Urethra		Urethritis	- Stone - Rupture urethra	Urethral carcinoma	
Prostate		Prostatitis		Cancer prostate	BPH

➔ **THE COMMONEST CAUSES ARE:** stones, bilharziasis, BPH, hypernephroma , trauma and urinary bladder tumors..

CLINICAL PRESENTATION OF IMPORTANT CAUSES:

1. Stones

- **Type of patient :** middle aged male
- **Symptoms:**
  1. Painful hematuria (terminal, initial or total according to the site)
  2. Pain:
     - Dull aching pain in the flanks if renal stone
     - Ureteric colic if ureteric stone (agonizing loin to groin pain usually with nausea & vomiting)

- Suprapubic pain with dysuria, strang y & frequency if bladder stone.
- Urethral pain referred to the tip of pe if urethral stone.

➢ **SIGNS:**

1. General:
   - Fever if infection occurred
2. Local: hypronephrosis - tender loin mass

2. RCC

➢ **Type Of Patient:** Male, 40 yrs

➢ **Typical presentation :**

1. Hematuria: painless, periodic, persistent, total.
2. Late: loin pain or clot colic, mass in the flank

➢ **Atypical presentation:**

1. Cachexia, metastasis (cough, hemoptysis)
2. Secondary varicocele
3. Paraneoplastic $ as: polycythemia, hypercalcemia, cushing dis.

3. Bilharzil cystitis:

1. History of bilharziasis (endemic area)
2. Painless terminal hematuria with anemic manifestations as: pallor & easy fatigability
3. Pyuria & dysuria due to repeated infections

4. BPH

➢ **Type of patient :** male > 60 yrs

➢ **Symptoms:**

1. Prostatism (LUTs):
   - Frequency , 1st nocturnal then day & night .
   - Hesitancy, intermittent flow, post-micturition dribbling.
   - Sexual : inc. libido then impotence

➢ **Signs:**

1. Non-tender bladder enlargement ± tender lion mass.
2. DRE → smooth, soft, symmetrical, preserved sulci & mobile rectal mucosa

INVESTIGATIONS

(cystoscopy is the most important one, better during the attack)

1- Laboratory:

1. Urine analysis
2. KFTs:
3. Tumor markers:

2- Radiological:

1. U/S: stones,tumor, congentilal polycystic kidney
2. IVU: stones, tumors (filling defect)
   SEP (smooth elevation of bladder neck)
   Hypernephroma (DEAD of pelvicalyceal system)

3- Instrumental:

- Cystoscopy:
  - With biopsy from any lesion

TREATMENT

(Not mentioned if the question is DD of hematuria)

1. Anti-shock measures (IV fluids, blood transfusion.....)
2. Stop bleeding by: Vitamin K injection, dicinone & cyclokapron IM
3. Treatment of the cause e.g.

DIFFERENTIAL DIAGNOSI

→ **Stone:**
- < 1 cm → conservative
- 1-2 cm. & not impacted.
  - Pelvis & upper ureter → ESWL
  - Lower ureter & bladder → endoscopic extraction
- >2cm or impacted → endoscopic extraction
- If failed above measures → open surgery according to the site

→ **SEP:**
- TURP (if small)
- Open prostatectomy (if large)

→ **Hypernephroma → radical nephrectomy**

➢ **Other causes of red urine**
1. Certain food (beet root)
2. Certain drugs: carmurit, rifampicin.
3. Hemoglobinuria (hemolytic anemia), myoglubinuria.
4. Bilirubinuria (OJ).
5. During menstruation

➢ **How to perform 3 glass test**
- Ask the patient to pass urine:
  - The first part of urine in a glass
  - The midpart in another glass.
  - The last part in a 3rd glass

a) Initial hematuria is urethral in origin
b) Terminal hematuria is UB or prostate in origin
c) Total hematuria is renal in origin.

Urinary diversion

A- TEMPORARY (to relieve distal obstruction)

1- **Uretheral obstruction** (as in elderly patients unfit for prostatectomy):
   a- Indwelling silicone urethral foley's catheter changed every 3 months (the drawback is infection with long term catheterization)
   a- Suprapubic cystostomy

2- **Ureteric obstruction:**
   a- Double J ureteric pig tail stents changed every 4-5 months
   b- Nephrostomy tube (percutaneous under U/S guidance).

B- PERMANENT:

➢ **Indications:**
1. Removed Urinary bladder
2. Lost normal urological control of urinary bladder
3. Incurable fistula
4. Irremovable obstruction

➢ **Types:**
1. External diversion:
   a- Ileal conduit:
   b- ureterocutaneous implantation
2. Internal diversion
   a- Ureterocolic Implantation
   b- Rectal bladder.
   c- Bladder reconstruction (neobladder)

➢ **Complications of internal diversion:**
1- Stricture
2- Resorption of solutes:
   - Effects:
      A- Reabsorption of chloride and Urea → hyperchloromic acidosis.
      B- Diarrhea → K+ loss
2- Other complications according to the type of diversion (see below)

More details about some types

A- ILEAL CONDUIT (THE BEST):

- A Segment of the terminal ileum is isolated with intact blood supply.
- The 2 ureters are implanted into it. one end is closed and the other end is fixed to the skin as an ileostomy.

★ **Advantages:**
- no urine leak , no infection & urine reservoir

★ **Disadvantages:**
- Hyperchloremic acidosis may occur but less severe than colonic diversion (absorption of chlorides by heal mucosa)
- Malabsorption of vitamin B12 → so, monitoring of its level after 1 year is important.

→ Special surgery

	B- URETEROCUTANEOUS IMPLANTATION	C- URETEROCOLIC IMPLANTATION
Procedure	The ureters are brought out on the skin surface through 2 small incisions	The ureters are implanted into sigmoid colon
Indications	1- Bad kidney function 2- Contraindicated ureterocolic implantation.	Cases with good kidney function
Advantages	Easy & best renal drainage	The patient is continent
Disadvantages	1- Continuous soil in with skin excoriation 2- Ammonical odor 3- Ascending infection	1- Ascending infection 2- Hyperchloremic acidosis 3- Cancer colon

D- RECTAL BLADDER:

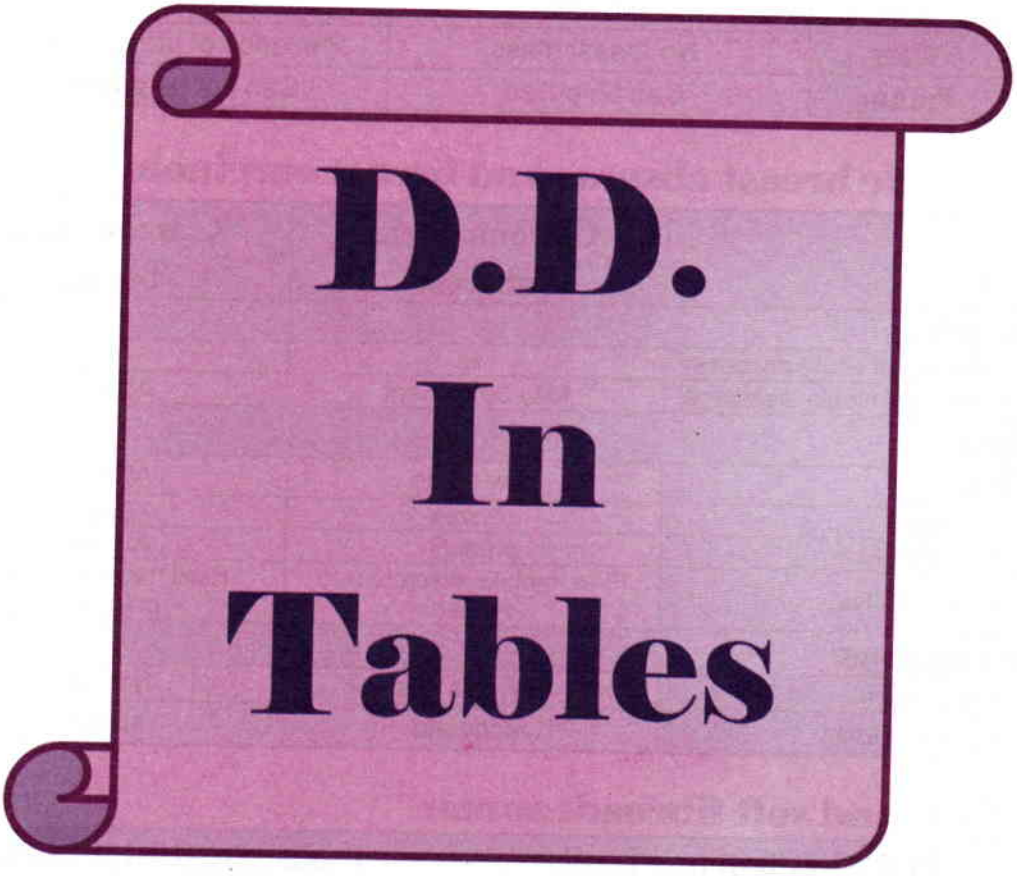
- The sigmoid colon is divided above the recto-sigmoid junction.
- The proximal end is brought out as colostomy
- The distal end is closed and the 2 ureters are implanted into the rectum , which will work as urinary bladder.

► **Advantages:**

- Easy and safe operation
- The patient will be continent to urine.
- No infection or hyperchrolremic acidosis.

► **Disadvantages:**

- Presence of colostomy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Tables

Q- Differentiate in a table form between?

BREAST

A- Congenital and acquired retraction of the nipple:

	Congenital Retraction	Acquired retraction
History	Since Birth	Recent
Side	Bilateral	Unilateral
Mass	No breast mass	Presence of breast mass
Pulling	Can be pulled	Can not be pulled

B- Chronic breast abscess and breast carcinoma:

	Chronic breast abscess	Carcinoma of breast
Symptoms:		
▪ History of acute abscess	+ve	-ve
▪ Purulent nipple discharge	May be present	Absent
Signs:		
▪ Fever	Low grade	Absent
▪ Surface	convex	Flat
▪ Tenderness	present	Absent
▪ Axillary LNs	Firm, mobile, discrete and tender.	Hard may be fixed & painless.
Investigations:		
▪ Aspiration	Reveals pus	Nothing
▪ Leucocytosis	Moderate	Absent

C- Hard and soft fibroadenoma:

Peri-canalicular (Hard) (Benign simple)	Intra-canalicular (Soft) (Gaint fibroadenoma)
Age: 20-30 years	**Age:** 30-50 years
Macroscopic picture: 1. **Size:** small 2. **Surface:** smooth. 3. **Color:** whitish 4. **Consistency**: firm or hard. 5. **Cut section:** whorly appearance. 6. **Capsule:** 2 capsules true and false capsule and a pedicle.	**Macroscopic picture:** 1. **Size:** large 2. **Surface:** lobulated. 3. **Color:** whitish 4. **Consistency:** soft 5. **Cut section:** might show central necrosis 6. **Capsule:** incomplete capsule.
Microscopic picture: - Formed mainly of **fibrous** tissue	**Microscopic picture:** - Contains **more glands**
Complication: - Never turn malignant.	**Complication:** - Liable to turn to sarcoma.

D- Ductal and lobular carcinoma in situ:

	DCIS	LCIS
Frequency	More common	Less common
Bilaterality and multicentricity	Rare	common
Microcalcification	present	Absent
Early detection	Possible	Less likely
Potential for invasive cancer	30-50%	It is a marker of increased risk of malignancy in the same or other breast
Treatement	As invasive cancer	Strict follow up

E- Early and late braest cancer:

	Early Breast Cancer = ($T_2N_1M_0$) or stage I,II in Manchester	Late Breast Cancer = ($>T_2M_1M_0$) or stage III, IV in Manchester
Symptoms	○ Painless swelling ○ negative occult presentations	○ Painful swelling ○ Positive occult presentations
General signs	Negative	May be positive for evidence of metastasis
Local signs: **a- Inspection**	1- Breast enlargement and asymmetry. 2- Skin lesions: a- Nipple retraction and skin dimpling. b- Peau de'range	1- Breast enlargement & asymmetry. 2- Skin lesions: a- Skin nodules. b- Sister joesph nodules. c- Cancer en cuirasse d- Skin ulceration. e- Brawny edema
b- Palpation	1- Firm to hard mass freely mobile. 2- Axillary LNs: negative or may be enlarged (hard and mobile)	1- hard fixed mass. 2- Axillary LNs: hard and fixed.

F- Common types of breast lumps:

	Carcinoma	Fibroadenoma	Fibrocystic disease	Solitary cyst
Age	Usually > 35y	15 – 30 y	35 – 55 y	35 – 55 y
Pain	Painless	Painless	May be painful	May be painful
Surface	Irregular	Smooth (may be lobulated)	Indistinct	Smooth
Consistency	Usually hard	Firm & highly mobile	Firm	Soft to hard
Axillary LNs	May be palpable axillary LNs	Free	Free	Free

G- Paget's disease and eczema of the nipple:

Paget's Disease	Benign Eczema
Unilateral	Commonly **bilateral**
Commonly at menopause	Commonly **at lactation**
Starts in the nipple	Starts in the **areola**
Nipple is eroded	Nipple is **intact**
No itching	**Itching**
No vesicles – not oozing	**Vesicles** – oozing
No response to eczema treatment	**Responds** to eczema treatment
Well defined	Ill defined
A breast lump may be felt	No lump

H- Mastitis carcinomatosa and acute lactational mastitis:

Mastitis Carcinomatosa	Acute Bacterial Mastitis
Affects **more than 1/3** of the breast	Affects **one sector** of the breast
Gradual onset & **slowly** progressive	**Acute** onset & **rapidly** progressive
No or **low grade** fever	**High** fever
Skin is **dusky red**	Skin is rosy or **firy red**
Mild tenderness	**Marked** tenderness
Non-tender axillary LNs	**Tender** axillary LNs
No response to antibiotics in one week → Indicating biopsy	**Responds** either to antibiotics (or an abscess will be formed)

THYROID

A- Total and subtotal thyroidectomy:

	Total thyroidectomy	Subtotal thyroidectomy
Control of toxicity	Immediate	Immediate
Return to euthyroid state	Immediate	Variable up to 12 months
Risk of recurrence	None	Lifelong up to 5%
Risk of thyroid failure	100%	Lifelong up to 25%
Risk of permanent hypoparathyroidism	5%	1%
Need for follow up	Minimal	lifelong

B- Grave's disease and toxic nodular goiter:

	Grave's disease	Toxic nodular goitre
Age	Young	Elderly
Onset	Abrupt	Gradual
Course	Exacerbations & remissions	Steady
Nervous symptoms	+++	
Metabolic manifestations	+++	+
Cardiovascular manifestations	+	+++
Eye signs	Exophthalmos	Usually no exophthalmos
Thyroid	Diffuse enlargement soft & vascular	Multiple or solitary nodules

C- Different types of thyroid adenocarcinoma:

	Papillary carcinoma	Follicular carcinoma	Anaplastic carcinoma
Incidence	60%	17%	13%
Age.	20 – 40 years (children & young adults)	40 – 60 years (middle aged)	Elderly
Sex (F:M)	3.5 : 1	2 : 1	1 : 1.3
Predisposing Factors	1. External irradiation of neck in children which was previously used for TTT of hemangiomas, T.B lymphadenitis. 2. papillary adenoma 3. genetic factors : a- Godwen $ a- ret/PTC3 oncogens	1. SNG. 2. Follicular adenoma.	Usually De Novo
Multiplicity	Ill-defined mass infiltrating the surroundings		
	- 80% **Multicenteric** due to intrathyroid lymphatic spread	Rare	
Micro	Loss of polarity & signs of mitosis.		
	- Malignant papillae with vascular C.T. core covered by malignant cells - Laminated calcified bodies **(psammoma bodies)** -The tumors shows characteristic pale empty nuclei **(orphan Annie-eyed nuclei)**	– Thyroid follicles with variable degrees of differentiation – Capsular & vascular invasion – Solid sheets may be present	– Clusters of spindle cells(small or large) – Separated by little fibrous tissue

Spread	▪ Mainly **lymphatic** to deep cervical L.N (Aberrant thyroid) ▪ Solid sheets may be present.	Mainly **blood** to *skull* usually solitary, painful, pulsating, osteolytic (D.D. abscess)	Mainly **direct** & can infiltrate carotid artery which may rupture.
TSH	Dependant	Less dependant	Not dependant
Prognosis	Good except if the pt at the peak of 40 years	Bad	Very bad
10 years survival	90%	Encapsulated 97% Invasive 70%	Die within 1-2 years

TESTIS

A- Testicular torsion and acute epididymo-orchitis:

	Testicular torsion	Acute epididymo-orchitis
Age	Adolescent & children	Adult or elderly
History	Mild trauma	UTI symptoms
Temperature	Slightly elevated	elevated
Scrotal elevation	↑ pain	Partially relieves pain
Urine analysis	Free	Pus cells
Doppler	Obstructed testicular Vs.	Patent Vs.

B- Seminoma and teratoma:

Seminoma	Teratoma
Age	
30 - 50 years.	20 - 35 years.
Origin	
Seminiferous tubules.	Totipotent cells which have trigerminal potentiality.
Risk factors of germ cell tumor	
• Undescended testis especially intra abdominal verities. The incidence of malignancy in undescended testis is 15 times more than normal population • Trauma which attract the patient attention rather than causing it	
Pathology	
❖ Macroscopic picture: • ***Large***, firm & smooth **Cut section:** • **Homogenous** & creamy or **pink** in color. • Fibrous Septa divide the mass into lobules. • Areas of hemorrhage and necrosis ❖ Microscopically Cells. • Rounded cells with large rounded nuclei. • Arranged in sheets separated by fibrous stroma. • Tumor is infiltrated by lymphocytes (good host reaction → good prognosis)	❖ Macroscopic picture: • Variable size, variable consistency and irregular surface. **Cut section:** • Heterogenous & yellowish • Areas of hemorrhage an necrosis **NB.** *Teratoma is surrounded by tunica albuginea → so shape of testis is preserved.* ❖ Microscopically: 1. ***Teratoma differentiated*** (Dermoid cyst) - Cyst is lined with stratified squamous epithelium and may contain hair bone, muscles as well as glandular element. 2. **Malignant teratoma intermediate (*The commonest type*)** 3. ***Malignant Teratoma Anaplastic:***. - Composed of anaplastic cell. - Cells derived from yolk sac produced increased level of alpha-feto protein 4. ***Malignant teratoma tropho-blastica (choriocarcinoma)*** - Malignant villous or papillary cyto-trophoblast produces HCG and spread early by blood and lymph. - **Most malignant testicular tumor**

VASCULAR

A- Embolism & acute thrombosis on top of atherosclerosis:

	Embolism	Acute thrombosis on top of atherosclerosis
History	Arrhythmia or recent M.I	claudication
Source of emboli	Usually present	Absent
Radial pulse	Usually irregular (AF)	Ususlly regular
Skin colour	White	Dusky
Limb nutrition	Normal	Picture of chronic ischemia
Angiography	Sharp cut-off Minimal collaterals	Tapering stenosis Diffuse atherosclerosis Extensive collaterals

B- Primary and Secondary Raynud's disease:

	Raynaud's Disease (1ry)	Raynaud's phenomenon(2ry)
Age & sex	young females (20 - 40 yrs)	Vary according to underlying cause
Cause	- Not exactly know, certain factors are suggested e.g.: 1- Increase sympathetic tone. 2- Psychological instability. 3- Abnormal sensitivity of small arteries and arterioles of hand to cold.	- ***Collagen*** → SLE, scleroderma. - ***Arterial obst.*** → Atherosclerosis, Burger's disease. - ***Nerve injury*** → Thoracic outlet $, carpal tunnel $. - ***Environmental*** → Vibrating tools - ***Drugs*** → beta-blockers.
Distribution	- It affects UL (may affect LL). - It is almost always bilateral. - It is almost always symmetrical.	- May affect LL. - May be unilateral. - If bilateral, it is asymmetrical.
Trophic changes& gangrene	Absent or minimal.	More prominent.
Radial & ulnar pulse	Present.	May be absent.
Follow up	No progression & no evidence of underlying disease.	- Progressive. - manifestations of underlying dis.
Investigation	Should be directed to the suspected underlying cause	
Treatment	Conservative (in early stages) ***Care of patient*** - Stop smoking. - Avoid cold weather. - TTT of anemia if present. ***Care of Hand*** - Good hygiene, dryness of the hand and wear woolen gloves in winter - Hand exercise. ***Drugs:*** *as chonic. Ischemia +* - Vasodilators → phenoxybenzamine, nifedipine. - Baby aspirin (prophylactic for fear of vaso-obliteration). - CCB.	- Treatment of the cause. - Vasodilators and beta-blockers may be used. - No benefit from sympathectomy as there may be: * Vasculitis. * Cryo-antibodies → cause VC in case of lowered blood temp. to 36-36.5° c

	Surgery (in severe cases) - Cervicodorsal Sympathectomy. - Immediate results are good, but may recur after one or two years (due to denervation hypersensitivity).	

C- Atherosclerosis and Burger's disease:

	Atherosclerosis	Burger's disease
Age of onset	Elderly	20-40 years
Sex	More in males	Only in males
Etiology	HTN, DM.	Excessive smoking
Level of lesion	Aorto-iliac, femoro-popliteal or distal	Distal vessels with patchy distribution
Pathology	Mainly intimal (atheroma)	Inflamed neurovascular bundle and thrombi that block the lumen
Migrating Thrombophlebitis	Absent	Usually present
Rest pain	May be present but late	Marked early feature

D- Dry and moist aseptic gangrene:

	1- Dry Gangrene	2- Moist Aseptic Gangrene
Pathogenesis (cause)	Chronic ischemia → allows dryness of tissues.	- Acute ischemia - Chronic ischemia with pre-existing edema (cardiac, DVT).
Pathology		
Putrefaction	Minimal.	Marked
Odor	little or no odor	Very offensive
Gross	- Dry. -Mummified. - Hard. - Wrinkled. - Dark in color.	- The part remains of the same size and consistency. - Colour: at 1st dead white the purple or greenish black..
Line of demarcation	well defined	ill defined (no time for evaporation)
Fate	**Separation** → - Due to presence of line of demarcation → appears between the dead & viable tissues. - Leaving a conical stump (deeper tissue has better blood supply).	**Spread** → by - Direct extension. - Skipped lesions.
C/P	1. The five cardinal signs of local death are: Lost (pulsation, Sensation, Heat, Function of affected part) fixed color changes.	

	Press & see How Colour fades NB Patient suffering from threatened gangrene have all the above signs but the tissues are still viable and local pressure causes some modification of color, which returns when the pressure is released. 2. The affected part is → see gross.	
	3. Minimal toxemia → better general condition.	3. Severe toxemia → poor general condition.
Treatment	***See chronic ischemia*** - Limb salvage (conservative amputation). - Non-conservative amputation.	- Amputation till the level of pulsation (acute condition) (non-conservative amputation). - Later on ttt of the cause if possible.

E- Unfractionated and low molecular weight heparin:

	Unfractionated heparin	Low molecular weight heparin
Mode of action	Antithrombin III	Anti Xa
Half life	1.5-2 hours	12 hours
Route of administration	I.V	S.C
Monitoring	APTT	Not required- if needed → level of Xa
Incidence of heparin induced thrombocytopenia	1-5%	<2%
	The patient should be hospitalized	May be taken at home

F- Duplex finding in normal cases and DVT:

	Normal veins	DVT
Vein diameter	Normal	Dilated vein
Blood flow	Spontaneous	Poor
Echogenic material in lumen	None	Present
Distal compression	Augments blood flow	Poor augmentation
Blood flow with respiration	Phasic flow with respiration	Loss of phasic flow with respiration

G- Primary and secondary varicose veins:

	Primary V.V	Secondary V.V
Etiology	Idiopathic	Secondary to DVT, A-V fistula, pelvic tumors or pregnancy
Pain	Slight or absent	Marked
Distribution	Along the long or short saphenous veins	Haphazard veins crossing the groin may be seen
Complications	Minimal or absent	More common

H- Blood born and lymph born types of TB:

	Blood born	Lymphatic born (fibrocaseous)
Age	More common in elderly.	More common in children.
Origin	Generalized affection. Occurs in milliary TB. OR Blood borne from **pulmonary** or **renal** TB.	Localized affection *(from catchment area)* → *1ry complex* - **Upper deep cervical LNs** (the commonest ✓✓) → portal is tonsils (organism pass without reaction) - **Mediastinal LNs** → from pulmonary TB. - **Mesenteric LNs** → Intestinal TB.
Pathology	Organisms reach L.N. through arterial supply in hilum → affection of **medulla** - **Not** affecting capsule (periadenitis) - **No** matting. - **No** caseation. - **No** cold abscess or sinus is ever seen clinically in this type.	Organisms reach L.N. through afferent lymphatics → affection of **cortex** - **Early** affecting capsule (periadenitis) - **Early** matting. - **Early** caseation forming **cold abscess** → perforate deep fascia → **Collar stud** → Abscess may break down → **sinuses**
Clinical picture	1- Manifestations of pulmonary TB. 2- Affected LNs → enlarged, not tender, **rubbery**, **not matted** & discrete	<u>C/O:</u> → Painless swelling gradual onset, slowly progressive. <u>O/E:</u> 1- Manifestations of T.B. toxemia (2N2L) 2- Manifestations of Pulmonary TB. (dyspnea, cough, expectoration & hemoptysis) 3- Affected L.N. → enlarged, not tender, ***firm*** early multiple then ***matted*** 4- Cold abscess → fluctuant (But not as hot as pyogenic abscess) 5- Multiple sinuses with undermined edge & cyanotic margins.
DD	a. Hodgkin's lymphoma b. Chronic non specific lymphadenitis	- LNs secondaries **For Cold abscess** (from other swelling in the neck) **For Sinus** (from sinuses in neck) thyroglossal – branchial-actinomycosis

I- Hodgkin and non-Hodgkin lymphoma:

	Hodgkin's disease	Non Hodgkin's disease
Age	Young	Old
Site	Unicenteric	Multicenteric
Skin overlying	Normal	May be red, hot, & dilated veins
Consistency	Rubbery	Hard
Mobility	Mobile, discrete but late might be amulgamated	Amulgamated early
Tenderness	- ve	- ve
Prognosis	Good	Bad

GIT

A- Different types of acute gastric ulcers:

Types	Multiple erosions	True stress ulcer
Causes	Non steroidal	• ICU patients • Sever trauma • Major burns • Endotoxic Shock
Pathology	• Occurs in the body and fundus of stomach • They are multiple , shallow and punished out • They varies in size from 1 mm to 1 cm or more • They are usually limited to the mucosa and sub mucosa	These are multiple erosions that if not recognized and treated coalesce to become the condition known as acute hemorrgic gastritis

B- Pathology of DU and GU

		DU	GU
Gross picture	**Number**	Single (usually **kissing**)	Single
	Site	1st inch of 1st part of duodenum (duodenal cap) anterior or posterior or both (kissing ulcer)	Lesser curvature prepyloric (the ulcer bearing area)
	Size	Usually small	Larger than DU
	Shape	rounded or oval	the same or saddle
	Edge	Sloping (at first) or punched out (later)	
	Margin	Congested with mucosal folds	
	Floor	1. Penetrate the muscle coat 2. Filled with: • Granulation tissue during activity • Fibrous tissue during healing	
	Base	Indurated (due to fibrosis) with destruction of mucosal coat.	
Microscopic	**Base**	Dense fibrous tissue PNL, lymphocytic infiltration, nerve ending around ulcer are thickened (bulbous)	
	Arteries	endarteritis obliterans	

C- Clinical picture of GU and DU:

			DU	GU
Type of patient			• Male 25-40 yrs usually well fed with no apparent signs of ill health • Male : female = 5 : 1	• Male 35-45 yrs usually thin and underweight • Male : female = 2 : 1
Symptoms	1. Pain	Type	Burning, stabbing, colic, shooting or dull aching	
		Time	a. ***2 – 3 hrs after meal*** (due to passage of acid chyme on the ulcer after gastric evacuation) & persists till the next meal (as hunger pain) b. ***Nocturnal pain*** awakens the patient in early morning. due to: 1- Maximum HCl secretion at night. 2- Stomach remains empty for a long time.	Usually starts **½ - 1 hr** or **immediately** after meals
		Site	Above the umbilicus to the Rt. side of the midline	Epigastric in the midline or just to the left. May radiate to the back.
		Exciting Factors	Irritant foods, nervousness, Smoking, stress	
		Relieved by	Alkalis & Antacids	
			Food or anything the buffers the gastric juice (patient carries biscuits)	Fasting & vomiting If antacids fail to stop pain → possibility of malignancy or penetration
		Periodicity	***Marked by:*** - Weather, worry, work - It occurs for 2 - 6 wks & relieved for 2 - 6 months - It is commoner in spring & autumn	Not marked
	2. Vomiting		Not prominant (Only if pyloric stenosis occurs)	Very common as it relieves pain & may be self induced
	3. Appetite		Good as eating relieves pain except for alcohol and smoking	Good but the patient is afraid to eat (sitophobia) as it induces pain
	4. Body wt.		Gain weight	Loss of weight
	5. Hematemesis & melena		+ve *(more melena)*	+ve *(more Hematemesis)*
Signs	Anemia		+ ve	+ ve
	1. Pointing sign		The patient can localize site of pain exactly by one finger	
	2. Tenderness		Above the umbilicus to the Rt. side of the midline	In the epigastrium in the midline or just to the left of it.

D- Barium meal findings in case of DU and GU:

	DU	GU
Ulcer niche	In the duodenal cap	on the lesser curvature.
Deformity	Early due to muscle spasm Later on due to fibrosis **(trifoliate deformity)** To be sure that the deformity is due to either spasm or fibrosis & not due to peristaltic wave, **Serial duodenal film** must be taken	Ulcer niche with opposite notch due to spasm of circular muscles. Later on due to fibrosis of circular muscle fibers
Post evacuation	**Ulcer crater →** • A flake of Barium remains in the ulcer niche (in patients with evacuation failure) • The mucosal folds are seen radiating toward it	
Tenderness	Tenderness at site of the ulcer	
Complications	Soup dish appearance (in pyloric stenosis)	Hourglass or teapot appearance

E- Early and late dumping syndrome:

Early Dumping	Late Dumping
1- Hypovolemia	**1- Hypoglycemia**
2- Within ½ hour after meal	**2 - 3 hours after meal**
3-Due to: Loss of the reservoir function of the stomach → rapid passage of hypertonic chyme into small intestine → shift of extracellular fluid into lumen of intestine → depletion of blood volume.	↑ CHO diet → hyperglycemia → ↑ insulin output → hypoglycemia
4- C/P : A- Gastrointestinal: ▪ Abdominal fullness followed by colic and diarrhea B- Vasomotor: ▪ Sense of weakness, flushing, palpitation ▪ ↑ pulse, ↓ blood pressure.	A- Sweating. B- Hunger. C- Tremors. D- Nausea.
5- Prevention ▪ Small frequent meals, rich in proteins and fats and less in CHO ▪ Liquids allowed only in between meals	▪ Small frequent meals , low CHO diet ▪ Oral hypoglycemic (Tolbutamide 500mg before meals)
6- Treatment: ▪ Assuming the supine position ▪ Polya converted to Reux-en-Y to delay emptying	▪ Avoid high CHO diet ▪ Somatostatin

F- Different types of gall stones:

	Cholesterol	Mixed	Black pigment	Brown pigment
Incidence	8%	80%☑	Pt with hemolytic anemia & cirrhosis	
Constituents	Pure cholesterol	Cholesterol(60%), $CaCO_3$, Ca bilirubinate Bile salts, bile pigments Phospholipids	Calcium bilirubinate	Major → calcium bilirubinate. Others → calcium balmitate and colestero;
Number	- Usually single☑ (cholesterol solitaire) - Sometimes multiple	Multiple	multiable	multiaple
Size	Large >2.5cm	0.5-2.5cm. Arranged in groups each group contains equal sized stones & represents an attack of infection.	<2.5 cm	<2.5 cm
Shape	Rounded or oval	Faceted	Multiple specula	laminated
Surface	Mamillated	Smooth		
Color	yellow	Yellowish	Tariy black	brown
Consistency	Hard & floats	Hard & sinks		
Cut section	No nucleus Radiating	Nucleated + laminated		
X-Ray	**Radiolucent☑**	**Radio-opaque☑** in 15% of cases	**Radio opaque in 50 % cases**	**Radio opaque**

G- Calcular and malignant obstructive jaundice:

	Calcular OJ	Malignant OJ
1. Type of patient	6 F	Elderly male
2. Jaundice	Slowly progressive, not severe intermittent,	Gradual, rapidly progressive or intermittent
3. Stool	Clay colored	Clay colored or silvery stool
4. Urine	▪Dark due to excess direct bilirubin. ▪Frothy due to excess bile salts → ↓surface tension.	
5. Pain	▪Recurrent attacks of dull aching pain ▪Rt. Hypochondrium → Rt. Shoulder	▪ May be absent ▪ Boring ▪ Epigastrium → Back
What ↑	Fatty meals	Lying down
What ↓	Antispasmodics	Leaning forward
6. Weight loss	-ve	*Marked*
7. LNs	-ve	+ve **(Virchow's LNs)**
8. Liver	Enlarged, not tender	Enlarged, not tender or enlarged, nodular & tender
9. Spleen, ascites, P/R	-ve	+ve
10. U/S	***Usually fibrosed gall bladder with stones***	**- distended gall bladder with thin wall**
11. CT	- Gall stones	- Head neoplasm
12. ERCP	- Stone in CBD	- Irregular filling defect
13. Gall bladder	- Usually impalbable	- Commonly palbaple
14. fever	- May be present	- Usually absent

H- Different causes of ascites:

	Cirrhotic	Malignant	Tuberculous
Age	Any	Early but may be young in ovarian cancer	Usually young
History	Jaundice or hematemesis	Short history Symptoms of the 1ry	Toxemia
General exam	Liver insufficiency	Distant metastases	Toxemia
Abdominal examination	HSM may be present	Multiple hard abdominal masses may be palpable	Doughy mass may be palpable
LFT	Poor	Normal	Normal
U/S	Liver cirrhosis/ splenomegaly	Abdominal masses may be detected	Abdominal masses may be detected
Tapping	Transudate	Exudate and cytology may show malignant cells	Straw colored exudates and culture may erveal T.B bacilli
Treatment	Medical Peritoneo-venous shunt	Tapping Radioactive gold	Anti-tuberculous
prognosis	Bad	Very bad	Good

I- Different clases of Child classification:

	1 point	2 points	3 points
Serum Bilirubin	0-2 mg %	2-3 mg%	≥ 3 mg%
Serum albumin	> 35 g/l	30-35 g/l	< 30 g/l
Ascites	None	Easily Controlled	Poorly Controlled
Encephalopathy	None	Mild or moderate	Advanced
Nutrition	Excellent	Good	Poor

A:	5-7 point	**Suitable for surgery**
B:	8-11 point	**Marginally suitable for surgery**
C:	12- 15 point	**Unsuitable for surgery**

J- Ulcerative and hypertrophic types of TB of intestine:

	Ulcerative type	Hypertrophic type (<10%)
1. Etiology		
a. Organism	▪ Mycobacterium tuberculosis. ▪ 2ry to pulmonary TB.	▪ Mycobacterium bovis.
b. Route	▪ Swallowing of infected sputum.	▪ Ingestion of the TB bacilli. ▪ Ingestion of infected milk.
c. Predisposing factors		
- Age	Adult	Child
- Immunity	Usually bad (open case of TB)	relatively good
- virulence		least virulent
2. Pathology (Lesion)	TB Ulcer: - ***Site*** → terminal ileum (more lymphatics) - ***Result*** → transverse ulcers (lymphatics circumferentially) - ***Number*** → multiple. - ***Edge*** → Undermined (affection of connective tissue > epithelium) - ***Margin*** → Cyanotic (due to EAO). - ***Floor*** → covered with caseous material. - ***Base*** → Indurated. - **Serosa**→ may be studed with tubercles and thickened.	- ***Site*** → ileocaecal region. - ***Result*** → thickening of submucous and subserosal layers→fibrosis → narrowing of terminal ileum, caecum, ascending colon. - ***Mesenteric LNs*** → involved early & may caseate. - ***No gross caseous necrosis.***

	Ulcerative type	Hypertrophic type (<10%)
3. Clinical Picture	***General*** - Manifestations of pulmonary TB - ↓ weight & anemia ***Local*** - Diarrhea, - Colicky lower abdominal pain - Fetid bloody stool.	***General*** - ♀ > ♂ - ↓ weight, anemia ***Local*** - Diarrhea - Abdominal pain - Fixed firm tender mass in Rt. iliac fossa. - Sometimes recurrent episodes of subacute IO.
4. Complications	- Stricture formation → IO. - Perforation (rare)	- Stricture → IO. - Fecal fistula
5. Investigations	**Laboratory:** - CBC anemia , lymphocytosis - ESR & +ve C reactive protein - +ve tuberculin test - Stool culture on Lowenstein Jensen media - PCR - Abdominal X-ray may show extensive calcification. **Radiological:** - Ba meal follow through)	**Radiological:** Ba meal follow through Narrowing of the ileum with elevated caecum
6. Treatment	- ***Anti TB drugs + sanatorial ttt*** - ***Surgical ttt:*** Indicated for: perforation, stricture & bleeding. Operation: resection and anastmosis.	- ***Surgical ttt:*** Indicated for: perforation, fecal fistula & obstruction. Operation: right hemicolectomy

K- Viable and non-viable intestine:

		Viable	Not viable
Musculature	**Consistency**	Firm	Floppy
	By pricking	Contracts	No response
Vasculature	**Color**	Pink	Brown to black
	Mesenteric arteries	Pulsating	Non - pulsating
	If injured	Bleeds	No bleeding
Peritoneal covering	**Luster**	Present	Absent

L- Different levels of IO:

	High S.I. obstruction	Low S.I. obstruction	Colonic obstruction
Vomiting	Early & repeated → early dehydration	Delayed for 12 hours	Absent or delayed
Distention	Absent or little	Central	Marked especially in the flanks
Constipation	Absolute, may be delayed until passage of distal stools		Early

M- Diverticular disease of the colon & carcinoma of the pelvic colon:

		Diverticular Disease of the colon	Carcinoma of the pelvic colon
Symptoms	**Bleeding per rectum**	Profuse and periodic	Small amount and continuous
	Pain	Common	Absent in 25 % of cases
	Duration	Long	Short
Signs	**Mass**	Usually tender	Usually not tender
Investigations	**Barium Meal**	Saw-tooth appearance	Stricture, shouldering & apple-core appearance
	Sigmoidoscope	Shows the mouths of diverticulum	Visualizes the mass and takes biopsy

N- FPC and bilharzial polypi:

	Familial polypi	Bilharzial polypi
Age	Young age	Adult
Sex	Both are equal	More in males
F.H	+ve	-ve
Site	Mainly sigmoid , rectum	Mainly sigmoid , rectum
Micro	Adenomatous polypi	Bilharzial granuloma, +ve ova
Danger	Precancerous 100 %	- ve

GENERAL

A- Enterocele and omentocele:

	Intestine	Omentum
Consistency	soft	Doughy
Gurgling	+ve	- ve
Reduction	difficult at 1st then easy	Easy at 1st then difficult
Percussion!!	Resonant	Dull
X ray	Gases	No gases

B- Different types of complicated hernias:

	Irreducible	Inflamed	Obstructed	Strangulated
Impulse on cough	+ve	+ve	**+ve (difficult)**	**-ve**
Reducibility	-ve	-ve	-ve	-ve
A.I.O	- ve	-ve	**+ve**	**+ve**
Tender	-ve	+ve	+ve	+ve
Tense	-ve	-ve	-ve	**+ve**

C- Oblique and direct inguinal hernias:

	Oblique inguinal hernia	Direct inguinal hernia
Incidence	More common	Less common
Age & sex	Any	Old males
Side	Unilateral or bilateral	Common bilateral (50%)
Size	Larger	Smaller
Shape	Oblong	Hemispherical
Descent	**Downwards, forwards & medially**	**Forwards**
Reducibility	**Upwards, backwards & laterally**	**Backwards**
Descent to scrotum	sometimes	Rare
Complications	↑	↓
Internal ring test	+ve	-ve
External ring test	Impulse at **tip** of finger	Impulse at **side** of finger
Relation of neck of sac to inferior epigastric a. (intra-operative)	**Lateral** to the artery	**Medial** to the artery

D- Sebaceous and dermoid cysts:

	Sebaceous cyst	Dermoid cyst
Age	After adolescence	At childhood
Site	Related to hairy skin	Related to lines of fusion
Consistency	Tense cystic	Lax cystic
Skin	Attached to skin by punctum where sebum can be squeezed	Not attached to skin

E- Different indications of blood transfusion:

Product	Indication	Precautions	Storage life
Whole blood	Class III & IV hemorrhage	ABO & Rh	21 days
Red cell concentrates	Severe anemia	ABO & Rh	21 days
Fresh frozen plasma	- Bleeding due to non-specified coagulation factor deficiency. - Coumarin overdose	ABO	1 year at – 40°C
Platelet concentrates	1ry or 2ry thrombocytopenia	ABO	24 – 72 hours
Cryoprecipitates of factor VIII & fibrinogen	Bleeding with fibrinogen depletion	ABO	1 year at – 40°C
Factor IX	Hemophilia A		2 years
Albumin 5% or 20%	- Acute volume expansion. - Hypoalbuminemia.		4 years

F- Different classes of hemorrhage:

	Class I	Class II	Class III	Class IV
Blood loss (in 70 kg person)	*Up to 15% (750 ml)*	*15 – 30% (750-1500 ml)*	*30 – 40% (1500-2000 ml)*	*> 40% (> 2000 ml)*
Mental status	*Normal to anxious*	*Anxious to restless*	*Aggressive to drowsy*	*Drowsy to unconscious*
Pulse	*< 100*	*100 – 120*	*100 – 140*	*> 140*
Systolic BP **Diastolic BP** **Pulse pr.**	*Normal* *Normal* *Normal*	*Normal* *Raised* *Low*	*Low* *Low* *Low*	*Low* *Low* *Low*
Resp. rate	*14 – 20*	*20 – 30*	*30 – 35*	*> 35*
Urine (ml/h)	*> 30*	*20 – 30*	*10 – 20*	*0 – 10*
Capillary refill	*Normal*	*>2 sec*	*>2 sec*	*undetectable*

G- Tidy and untidy wounds:

	Tidy wounds	Untidy wound
Mechanism of injury	Incision	Crushing or avulsion
Cleanliness	Clean	Contaminated
Tissues	Healthy	Devitalized
Tissue loss	No or little	Much tissue loss
Healing	1ry intention	2ry intention

H- Types of wound healing:

	1ry intention	2ry intention	3ry intention
Character of wound	- Tidy wounds - Opposed edges - No complications	- Untidy wounds - Gapping of edges - Complicated wounds (e.g. infected)	- Wound initially left open to allow drainage, then when healthy closed by 2ry suturing
Scar	Minimal-strong scar	Extensive-weak scar	As primary
Duration	-Seals in 1-2 days -Heals in 1-2 weeks	Much more time is Needed	Closed when the wound is healthy to avoid bacterial contamination

I- Dry and moist wound healing:

Dry Wound Healing	Moist Wound Healing
▪ Hard to epithelialize. ▪ No wound nutrition. ▪ Scabs delay healing due to ***desiccation*** of underlying tissues. ▪ Dead tissues are a good media for anaerobic bacteria.	▪ Easy to epithelialize fast. ▪ Allows wound nutrition. ▪ Prevents scab formation. ▪ Allows granulation through cell migration.

UROSURGERY

A- Intra and extra peritoneal rupture of UB:

	Intra-peritoneal rupture (20%)	Extra-peritoneal rupture (80%)
Causes	- Occurs in males > females. - Full bladder & direct trauma applied to supra-pubic region. - Surgical injury.	- More in males. - Bladder is injured 2^{ry} to fracture pelvis. - Surgical injury is rare.
Pathology	- Sterile urine escapes into peritoneal cavity → peritonism → delayed peritonitis. - Rupture usually occurs between the roof and post wall of the bladder.	- Urine extravasates into the peri-vesical & peri-prostatic spaces, retro-pubic space (cave of Retzius) and then ascends up between peritoneum & fascia transversalis.
Symptoms	▪ History of trauma. ▪ Supra-pubic pain. ▪ Urine retention with **NO** desire to micturation in intra-peritoneal type, but the desire is preserved in extra-peritoneal type. ▪ Hematuria.	
Signs	▪ **General:** shock. ▪ **Local:** **Inspection**: bruises, ecchymosis & rigidity **Palpation**: guarding, rebound tenderness **Percussion**: shifting dullness **Auscultation**: diminished intestinal sounds **DRE**: fullness in recto-vesical pouch Catheter can be passed easily & no urine is obtained (only blood)	▪ **General:** shock. ▪ **Local:** **Inspection**: bruises, ecchymosis & rigidity in supra-pubic region due to fracture pelvis. **Palpation**: guarding, rebound tenderness in supra-pubic region. **Percussion**: no shifting dullness. **DRE**: empty recto-vesical pouch. Catheter can be passed easily & blood + small amount of urine
complications	• Pelvic abscess from infection of hematoma or urine collected. • Delayed peritonitis. • Partial incontinence if bladder neck is injuried.	
Investigations	**1-X-ray**	
	Ground glass appearance (due to urine in the lower part of the abdomen).	Fracture pelvis.
	2-U/S & CT scan:	
	Free fluid in peritoneum → peritoneal tap may be of value	
	3- Ascending cystography or IVU	
	Leaking of the dye from the urinary bladder	

B- Extra and intra-pelvic rupture of UB:

	Extra-pelvic rupture (most common)	Intra-pelvic rupture
Cause	Trauma to perineum **(Falling astride or kick).**	- Iatrogenic by catheterization - 2^{ry} to fracture pelvis
Pathology	• The tear may be partial or complete. • The urine collects under Camper's, Scarpa's & Colle's fasciae at the penis, perineum, scrotum, anterior abdominal wall & then descends down to the upper part of the thigh.	• Tear of the urethra, which is usually complete. • Avulsion of the pubo-prostatic ligament → **floating prostate**. • Extravasation of urine (in the cave of Retzius).
Symptoms	**Severe pain in perineum.**	**Severe pain in hypogastrium.**
	History of trauma. Urine retention with desire to micturation. Urethral bleeding. **The triad of urethral hemorrhage, perineal hematoma and retention of urine is diagnostic of extra-pelvic rupture.**	
Signs	▪ **General:** Shock. ▪ **Local:** - Perineal hematoma - Bleeding per urethra. - Bladder is full. - **Catheter is never used** if urethral injury suspected.	▪ **General:** Shock. ▪ **Local:** - Fracture pelvis - Bleeding per urethra. - Bladder is full. - **Catheter is never used** if urethral injury is suspected. - **PR: prostate can not be felt.**
Complications	I. **Subcutenous extravasation in complete rupture.** II. **Stricture.**	1. **Stricture.** 2. **Incontinence.** 3. **Impotence.**
Investigations	**Plain X-ray**	
	-ve	Fracture pelvis
	▪ **Urethrogram:** - Extravasation of the dye ▪ **Cystogram:** - For associated UB injury.	

C- Different types of urinary stones:

Types	Oxalate	Cystine	Phosphate	Urate
Surface	**Spiky**	Smooth	Smooth	Smooth
Consistency	Hard	**Very hard**	Hard	Hard
1ry, 2ry	1^{ry}	1^{ry}	**2^{ry}**	1^{ry}
Radiological	Opaque	Opaque	Opaque	**Lucent**
Color	Brownish	Pink to yellow	Dirty white	Reddish brown

D- Calcular anuria and acute retention of urine:

	Calculus anuria	Acute retention of urine
History	ureteric colic	severe supra pubic pain
Examination	bladder is empty	bladder is distended
Catheterization	catheter is passed → **no urine**	catheter is passed → **brings urine**

E- SCC and TCC of UB:

		SCC	TCC
Age		20 – 40	> 60
Sex		Male : Female 4 : 1	Male : Female 3 : 1
Predisposing Factors		a. **Chronic irritation:** - Mechanical: by ova or stones. - Chemical: by metabolites (N-Nitrose compound, tryptophan, serotonin). b. **Chronic infection:** especially with ammonia-producing organisms. c. **Abnormalities of tryptophan metabolism.** d. **Precancerous lesions:** - Brunn's nests. - Cystitis cystica. - Leucoplakia & squamous metaplasia.	a. **Chronic irritation:** - Chemical: ▪ Smoking ↑ the risk by 2-4 folds. ▪ Industrial carcinogens (e.g. aniline dye). ▪ Chemotherapy (cyclophosphamide) ↑ the risk 9 folds. - Physical: pelvic irradiation. b. **Genetic:** - Activation of oncogenes e.g. RAS & Cerb B-2. - Inactivation of tumor suppressor genes e.g. P-53 (Le Fraumini).
Pathology	**Site**	Usually at the posterior & lateral walls	Usually at the base and around ureteric orificies.
	Macroscopic	Fungating mass (common) Malignant ulcer Papillary mass (rare)	Papillary mass or papillae, Ulcer. Nodule. Localized eryhtematous patches.
	Microscopic	SCC → Cell nests if well differentiated	**TCC is classified into:** 1. Superficial TCC (75%): commonly papillary type. 2. Muscle invasive type (25%). 3. Carcinoma in situ (CIS) (**associated** in 5% of the cases).

PLASTIC SURGERY

A- Different degrees of burn:

	1st degree	2nd Degree	3rd degree
Damage	▪Only the epidermis → erythema of skin usual example is sunbum.	▪Epidermis + portion of dermis.	▪Complete destruction of epidermis and dermis.
Healing	▪Heal rapidly	▪Epidermal regeneration can occur from remnants of hair follicles and sweat glands in dermis provided that no infection. ▪If infection → destruction of epithelial remnants → 3rd degree.	▪No healing only migration of Epithelium from edges of burnt area ▪separation of escahr by 3rd week ▪Skin graft is needed
Appearance	▪ Forms blisters surrounded by erythema ▪ Their surface is moist due to exudation of plasma		▪ White or black escars ▪ The area is dry ▪ Possible visible thrombosed S.C vessels
Presence of pain	▪ Painful ▪ Sensitive to air		▪ Painless (due to affection of nerve ending)

B- Different types of grafts:

	Split thickness	Full thickness
Definition	Epidermis + superficial part of dermis	Epidermis + full thickness of dermis
Indications	1- Covering large area of granulating tissue. 2- Coverage after: a) Deep burn. b) Malignant tumor resection.	1- Facial wounds 2- Palmar aspect of hands and planter aspect of feet. 3- Site of pressure on sole of the foot
Donor sites	1- Trunk , thighs 2- Upper arm, fore arm	1- Post-auricular skin 2- Upper eye lid 3- supraclavicular
Advantages	1- Early separation & application 2- Increase TAKE by graft. 3- Can cover wide area. 4- Early detection of recurrence of malignancy) 5- Donor site heals spontaneously.	1- Direct closure of donar site. 2- Minimal contraction. 3- Better sensation 4- Better cosmosis 5- Resistant to trauma.
Disadvantages	1- More liable contraction. 2- More liable for pigmentation. 3- Weak resistance to trauma. 4- Poor sensation & cosmosis	1- Limited donor site. 2- Can't be applied on granulation tissue 3- Less TAKE 4- Asepsis must be perfect. 5- Scar at the donor site.

C- BCC and SCC of skin:

	BCC	SCC
Definition	Locally malignant	malignant
Incidence	Male old age	
PDF	▪ Exposure to sun rays, **Ultra-violet rays** (**Most important**) so the disease is more common in Farmers & Sailors. ▪ Albinism & Xerodermia Pigmentosa (AR). Predispose to multiple basal cell carcinoma all over the body. ▪ Ionizing radiation. ▪ Patients receiving immunosuppressants.	▪ Long standing irritation of the skin as in chronic ulcers, old burn scars & sinuses (A carcinoma arising on top of scar is called Marjolin Ulcer & there is usually a delay in its diagnosis.) ▪ Prolonged exposure of the skin to carcinogenic agents as coal tar derivatives.
Pathology: **1. Site**		Any site
2. Macro-	1-2-3-4-5-6-7	Nodular or ulcer
3. Micro-	Cell mass (pallisade) with fibrous stroma	differentiated (cell nest) &undifferentiated
Spread	Only direct (locally malignant)	Direct, blood & lymph
C/P **Type of patient** **Nodule** **Ulcer** **L-node**	♂ > 40 years, fair colored people, farmers & sailors Painless nodule Ulcer resistant for ttt. slowly growing No LN except if infected or malignant transformation	Rapidly growing Enlarged in infection and metastasis
Complications	- Hemorrhage, infection, infiltration - Malignant transformation	- Metastasis

D- Dental cyst and dentigerous cyst:

	A- Dental Cyst	B- Dentigerous Cyst
Origin	Paradental debris of Malassez	
Etiology	- Decayed tooth - Chronic inflammation	- Missing 3rd molar
Pathology	- Adults - In upper jaw. - Granulation tissue with exudation.	- **Children** - **Lower** jaw - Cystic enlargement with bone expansion & thinning
Investigations	▪ X-ray - Doesn't contain a tooth	- Contain a tooth
Treatment	Tooth extraction & curettege of cyst	

NEUROSURGERY

A- Extra-dural and acute subdural hematoma:

	Acute extradural hematoma	Acute subdural hematoma
Etiology	- Usually mild trauma.	- Severe trauma.
Clinical picture	- Usually mild brain damage.	- Severe brain damage & laceration.
	- Lucid interval may be present.	- Persistent loss of consciousness, no lucid interval.
	- The hematoma is usually unilateral.	- Commonly bilateral and extensive (coup & contre-coup).
Investigations	- CT → **biconvex**.	- C.T → **cresenteric**. (concavo-convex)
Treatment	- Early surgery is successful.	- The patient has serious brain damage and edema in addition to the hematoma, and so results of surgery are not very successful. Mortality rate is up to 50 %.
Prognosis	- Better prognosis	- Worse prognosis

B- Simple and compound depressed skull fractures:

	Simple depressed	Compound depressed
Cause	Blunt rounded object.	Localized sharp object or severe blunt object.
Age	Common in infants & children (ping-pong).	Common in adults (stronger skull).
Associated lesions & complications	Less common: - Mostly overlying hematoma.	More common: - Scalp→profuse bleeding. - Dura: CSF leakage, brain prolapse & infection. - Cerebral cortex: contusion & epilepsy - Venoussinous: - Intracranial hemorrhage.
Treatment	- Conservative. - Elevation when indicated.	- Surgical interference - Cranioplasty: (in depressed comminuted fracture).

C- Fissure and depressed skull fractures:

	Fissure (linear) fracture	Depressed fracture
Instrument e.g.	- Head trauma to the wall	- Head trauma with a hummer
Contact surface area	- Wide	- Small
Site	- Starts at site of impact &runs away from it	- Localized under site of impact
Complications	- Less common	- Common
Treatment	- Conservative - Treatment of associated lesions if present	- Elevation if indicated + of associated lesions if present. - Cranioplasty if there is comminution of bone

D- Subconjunctival hemorrhage due to local trauma and fracture base of the skull:

	Subconjunctival hemorrhage due to local trauma	Subconjunctival hemorrhage due to fracture base
1. History **-trauma** **-conscious.** **-onset**	- To the eye. - Not affected. - Immediate.	- To the head. - Loss of conscious. - Delayed.
2. Shape	-Triangular, base to cornea.	- Triangular apex to cornea. -The eye may be pushed forward
3-Post limit	- Definite.	- Can not be seen.
4- color	- Bright red.	-Dark red.
5-movement	-------	Limitation of movement of eyeball

E- Fracture vault and fracture base of the skull:

	Fracture Vault	Fracture Base of the Skull
Compressing hematoma (EDH)	Common	Rare
Types	Closed or open	Open>>closed
Infection, Pneumocephalus	Less common	Common
Bleeding/ nose, ear	Less common	Common
Associated nerve injury.	Rare	Common
Associated brain injury.	Close to or near fracture. Opposite side in contre-coup	May be away from fracture. Site in indirect fracture base
Treatment	Elevation of depressed TTT of associated injury (dural tear, EDH....)	Aiming to control: CSF leak, Infection. TTT of associated injuries (brain & cranial ns)

F- Different types of scalp hematomas:

	Subcutaneous	Subgaleal (subaponeurotic)	Cephalhemtoma
Site	Under the skin(Confined to dense subcutaneous layer) Localized to the site of trauma.	Under galea aponeurotica in loose areolar tissue.	Under the periosteum
Trauma	Direct trauma	Scalp trauma	Birth injury
Source of bleeding	Scalp	Scalp or fractured underlying bone	Fractured underlying bone
Characters	Small, painful	Diffuse soft, fluctuating extending as far as the attachment of the galea, reaching anteriorly to the supraorbital ridges, Posteriorly to superior nucheal line & laterally to temporal crest	It is limited by suture line of affected bone as the periosteum is attached at the suture lines (usually the parietal bone)
Scalp	Moves with the scalp over the skull	The scalp floats over the swelling	The scalp moves over the swelling but the swelling can not be moved over the skull

DD		Subgaleal collections: CSF(meningocele), empyema	Depressed skull fracture.

G- Neurapraxia, axonotemesis and neurotemesis:

Neuropraxia	Axonotmesis	Neurotmesis
- Nerve concussion: physiological interruption of all its functions without any organic damage.(functional paralysis)	- Rupture of nerve fibers but outer sheath is intact (Intracecal rupture)	- Division of the nerve (partial or complete).
- Complete motor paralysis.	- Complete motor paralysis.	- Complete motor paralysis.
- Patchy sensory loss.	- Complete sensory loss.	- Complete sensory loss.
- No Wallerian degeneration. - Recovery takes place spontaneously within 4-6 weeks	- Wallerian degeneration in distal part for 10 days followed by regeneration 1mm/day with further 3 weeks delay before complete activation	- Wallerian degeneration occurs but regeneration is impossible. - After surgical repair recovery is poorest in **mixed nerves**(Ulnar & median) and **in motor nerves** (a large number of small muscles) recovery is best in **purely motor nerves** (a few groups of large muscles)such as the radial nerve

ORTHOPEDICS

A- Delayed and malunion:

	Delayed Union	Non-Union
Pathology	Bone ends are decalcified and the fractuire line is widened into a gap full of fibrous tissuse	The bone ends are sclerosed and the medullary canal is closed by dense bone
Clinically	Abnormal movement and tenderness at the site of fracture	Abnormal movement and tenderness at the site of fracture
Spontaneous healing	Possible with prolonged uninterrupted immobilization.	impossible

B- Suprachondylar fracture of the humerus (extension type) and posterior elbow dislocation:

	Extension Type	Post. Dislocation of Elbow
Age.	Pediatric fracture.	Usually in adults.
Mobility.	Painful limitation of active movement.	Absolute loss of active & passive movement.
3 bony points at elbow.	Normal relationship.	Disturbed relationship.
Supracondylar ridge.	Interrupted.	Normal.
Measurement: **From the tip of acromion to lateral epicondyle.** **From the lat. epicondyle to styloid of radius:**	Interrupted. Normal.	Normal. Interrupted.
X-ray:	Fracture Line.	Dislocation.

C- Osteoclastoma, Osteosarcoma and Ewing's sarcoma:

	Osteoclastoma	Osteosarcoma	Ewing's
Age & Sex	-15 - 45 years. -F > M	-10-25 years. -M > F -Most common 1ry malignant tumor.	-5 - 15 years. -M > F
Site	-Epiphysis of long bones. -Around knee and away from elbow.	-Metaphysis of long bone. -(Rule of 80).	-Diaphysis & metaphysis of long bones.
Cell of origin	- Unknown (thought to be osteoclasts hence the old name osteoclastoma) - Osteolytic.	-Osteoblasts → osteogenic.	-Round cell (BM reticulocytes).
Spread	-Locally malignant (aggressive).	-Direct . -Blood → BLBL -(80%lung metastasis). -Lymphatic→ Rare& Late.	1. **Direct** 2. Blood→BLBL(common). 3. Lymphatic→ common.
Clinical Picture			
Signs Swelling	Bony swelling which is: - Globular - Sharply defined edges. -Egg shell crackling sensation.	- Warm, tender, identified - Firm to hard with soft areas.	- Warm, tender, ill defined.
LN	-No LNs.	-Late affected.	-Common.
X-ray	- Soap bubble appearance. - Thin expanded cortex. - Medullary plug.	<u>Ill defined destructive lesion:</u> - Start in metaphysis - Destroys the cortex - Invades the soft tissue <u>New bone formation:</u> - Sun ray appearance (stretched BVs around which new bone formation) - Codman Δ <u>Soft tissue mass around the bone.</u>	-Onion peel appearance (Osteolytic + periosteal new bone formation).